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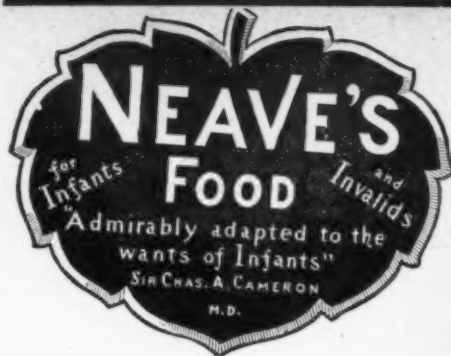
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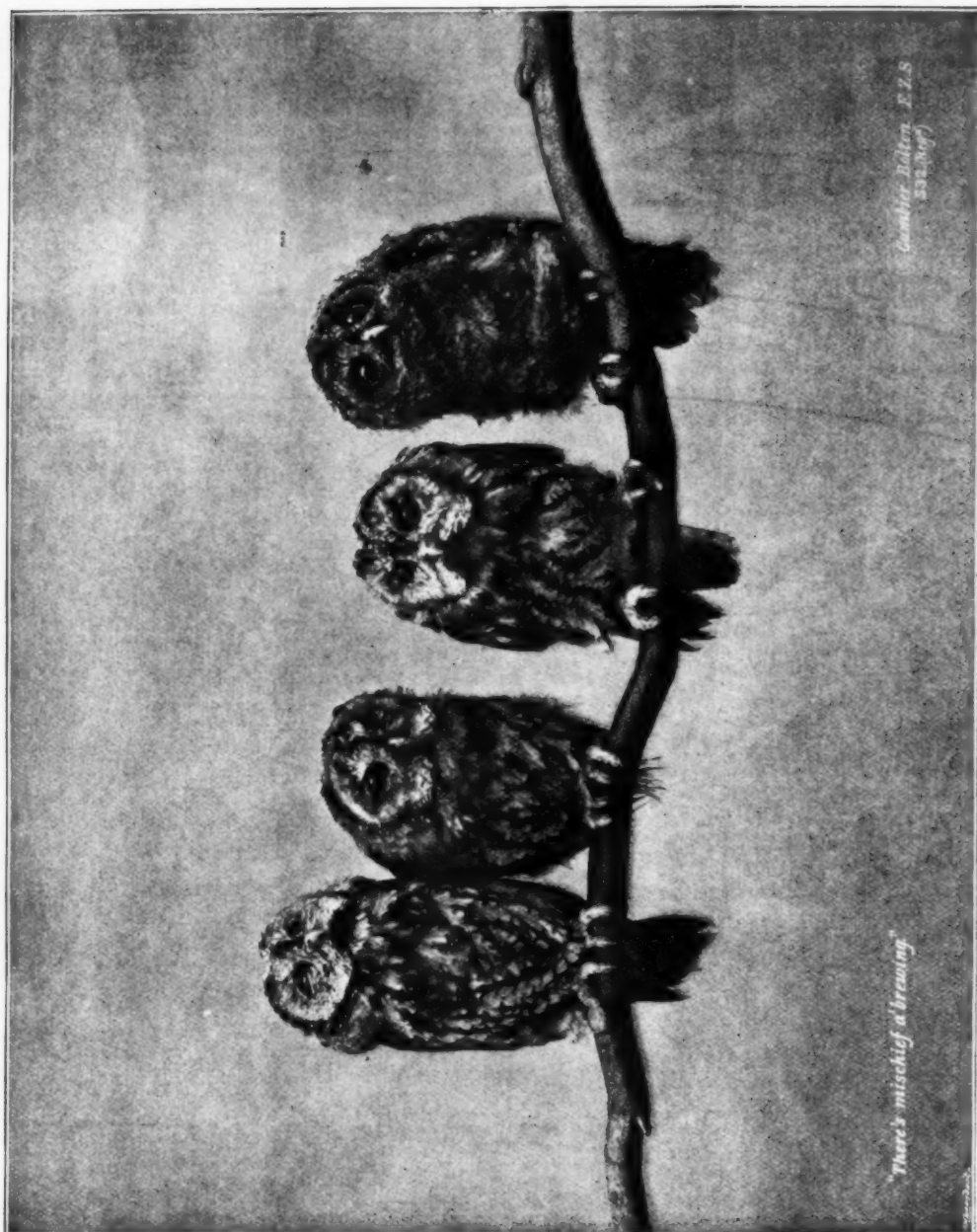
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"There's mischief 'a' brewing"

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DOWN IN THE WORLD.

STORIES OF THE LITTLE INDUSTRIES AND THE AL FRESCO TRADES.

BY ELSA D'ESTERRE KEELING, AUTHOR OF "OLD MAIDS AND YOUNG," ETC.



THE FLOWER-MAKER.

THE French madam was dying, and her son was in extremes of grief; so was Molly. The French madam's son was seventeen, and Molly was seventeen. Molly was a deaf-mute, who lodged with madam, who had been a modiste, sharing her room. The French madam was fond of Molly, and Molly loved the French madam. Of late

she had helped to earn for her. She had learned to make artificial flowers, fearful and wonderful things—buds that never became blossoms, and blossoms that had never been buds. Ladies wear them in their bonnets, and even in their bosoms, and trailing along their skirts. This thing, one thinks, will alter. A rose was made by Molly somewhat in

this way. She lighted a coke stove, and heated at it a metal ball; this she pressed on a small, flat, circular piece of cambric till it swelled out like cherubs' cheeks. The cherubs' cheeks she pinched with a pair of pincers—this she called crimping—and lo! and behold! *petals*. One of the petals she folded up to form the heart of the flower, which heart she attached to a gutta-percha stalk by means of needle and thread, and then clustered round it a number of other spread petals, the whole thing being held together by a thread, flour-paste, and a bead slipped up the stem. A full-blown rose having thus been made, leaves and buds were attached to it, according to the price to be demanded for it. Such a flower, leaf, bud, and blossom would be made by Molly in some two hours. Nature, I think, had never been known to produce a rose-blossom in less time than a week of days and nights, keeping hard at work during all this time. In the matter of speed the palm remained with Molly. Again, the petals of Nature's roses, not being fastened into a strong bunch by means of needle and thread and flour-paste and a bead, but merely being held together by that highly evaporative fluid, life, are apt to fall off much more quickly than did Molly's. No maddest wind was ever known to fly away with one of Molly's petals. It was in this that she considered she had a little pull over Nature. She smiled with pity at fallen rose-leaves and with frank scorn at hips and haws.

Never did anyone work harder than Molly; though the French madam was dying, she worked on. It seems just possible that, in leaving the French madam thus at the last, the thought was in her mind that madam would wish to be alone with her son. Having watched through all the night and through much of the day by the bedside of the dying woman, she resumed her work beside the coke fire in the adjoining room. It was a sultry autumn afternoon. Within no very great distance of the room in which this child toiled the valleys were standing thick with corn, and laughed and sang as they did in old Judæa. In a garden which she could see from her high window, white wine and red wine could be taken from the currant-bushes, where they grew in their own wine-skins, just as if life were a fairy tale. But the air round her was thick with coke fumes. She opened her calico dress at the neck, turned up her sleeves, and set to work, holding the iron ball to the heat.

Molly had, folks said, no prettiness. Her complexion was smoky, her bared neck was lean and brown, her arms were scarred with scalds and burns. On one arm was a bandage of lint, soaked with carron oil. She pulled this off, exposing the fresh burn. It did not seem to strike her as unsightly. Holding her ball to the fire with one hand, she held her head with the other. She was, it was evident, in great suffering. There is a pain in the head which working girls and women call opening and shutting. Molly's head was opening and shutting, and yet she did not grimace. When you looked at her for some moments that fact was borne in on you, and carried with it a great surprise. A few minutes' longer looking, after having

made that discovery, opened your eyes to the knowledge of a very high beauty in the child's face. It had its home in the quiet eyes and the quiet mouth. It was mystical, and I think it was Irish—this odd quiet. Our noise is noisier, and our quiet is quieter than noise and quiet are elsewhere. While Molly's head was still quite clear, that of the French madam—who was in less pain than she, albeit dying—was clouded again. She was making merry in her delirium.

"Do you remember," she was saying to her son, as her thoughts went back to what had evidently been in its way a grand feast—"do you remember that last Sunday that we had shrimps to tea?"

She always spoke of having edibles, shrimps and the like, to meals, as if they came as guests. Her son had often laughed at her for this, but now he knelt beside her bed and looked most sadly into her face. She was silent for a little while; then she began to ramble anew. Her thoughts still ran on food. She was apparently in mind out marketing, and was trying to decide whether she wanted a shop or a chop. She became very angry, and said some rude things of the English language. She became very childish.

Tears flushed the eyes of her son, and he took in his the hand that lay on the bed-cover, and said in French—

"Speak French, my little mother, and speak no more of these things now. My little mother, speak of something else now." And then he brought his face up close to hers, and said many times—

"Mère, mère! ma mère!"

After that there was a long silence. It was broken by the French madam. She suddenly sat up in her bed, in her eyes the French look that says—"Tiens!"

"Fetch the child Molly, my son," she said, in a quite clear, serious voice. The boy went, and came back holding the hand of the girl. The French madam continued to sit up, and looked at them very earnestly. Perhaps, from a habit of watching much, in the absence of power to speak or hear, Molly read all that was in the earnest look, and a deep blush came to her face, though her eyes and mouth kept their brave quiet. The French madam's eyes softened, and she said—

"Bend, child, and kiss me."

While the young head was bent she passed her hand over the glory of red-gold hair that crowned it. Nature has this freak of putting golden crowns on persons quite too little lovely to be queens when not a drop of blood in them is sib to kings.

"*Pauvrette, pauvrette!*" said the French madam, with her hand upon the gold. "Little poor one! little good one!" she added, in quaint English, and then said—

"Child, I think you have not kissed me."

Molly kissed her hands and face, and kissed the pillow on which she lay, and again her face, and again the pillow, and then, with a low moan, hurried from the room. She tried to resume her work of cutting petals, but it would not be done. There is a spasmodic movement of the finger and thumb which is called writer's cramp. A move-

ment very similar to this made Molly unable to retain hold of the scissors. When they had fallen from her hand for the third time she pushed her roses to the farther end of the box which served her as a table, and bent her face upon it. She did not cry : she fell asleep.

In the next room the French madam spoke with her son.

"When they have taken me away," she said, "you children will be alone. That must not be, my son. Molly must. . . . Bess. . . ."

She struggled with her voice, but it was useless. A silence set in again ; then she whispered something.

Her son bent over to catch the words, but the lips had ceased to move, and the French madam was no more. It was night. The sky was as dark as *jasmin-leaves*, but stars were strewn about it like *jasmin-flowers*. It was a summer sky, though an autumn wind was stirring. The young Frenchman looked from it to the face of his dead mother, and half an hour passed. Then the overwhelming loneliness became too much for him. He went into the adjoining room, and found Molly sleeping. Then he went down the stairs to the house door.

Two girls came down the street. They were both tall, and poorly but neatly dressed ; their faces were lifted to the light and their feet touched the pavement, toe and heel. They might have been two princesses, but they were only two poor working girls, between whom and princesses there was all that distance that there was between the simples in the cellars and the *grandees* in the upper storey of Hans Andersen's tale.

They were friends. One gave heart's liking, and the other gave love without measure. It was not a fair exchange, but they were satisfied. As they went past the door at which stood the French lad he said, without stepping forward—

"Bess !"

The taller girl stopped.

"Anyone calling me?" She peered into the dark doorway. "Hullo! what's up with you? Is your mother worse?"

He put his hand on her arm, and her face changed.

"I want you to come with me—to talk a few words with me—I'm so——"

His voice thickened, and Bess looked at her friend, who drew back, saying quietly—

"I'll wait. Go with him."

The Frenchman and Bess forthwith went into the house and up the stairs together. His mother had rented three rooms of this house. One was her bedroom, which she had shared with Molly ; one was her son's bedroom, which he had shared with a night-lodger ; and the third room was, as occasion necessitated, kitchen, workroom, or reception-room. To this third room the lad took Bess.

"There's a chair in the other room," he said, directing his steps thither. It was his mother's room.

Bess put her hand on his shoulder.

"I can stand."

The darkness had deepened, and only the out-

line of the two figures was visible, the tall, strong figure of the girl and the small, slender figure of the lad. He was greatly agitated, and her quiet contrasted strangely with his manner. They were standing in the middle of the room. She walked over to the window and leaned up against the woodwork. The light of the street lamp was thrown upon her face. It was scarcely pretty, but was wonderfully pleasant to look at, being singularly pure in line and lighted from within as well as from without. It was too proud for a face so young, and there was some cruelty in the curve of the fine mouth. She looked down at the boy more than was necessary. He was lower in space than she, but his head was higher than the point which she focussed. Only England's tall daughters have the habit of looking lower at the less than is needful.

"I've been thinking about you," she said. "I've been talking about you to my Uncle Clinch. I want him to take you on."

Bess's Uncle Clinch was a fruiterer with a fairly flourishing business.

"I've told my uncle," she added, "that I'm goin' to bring you round to see him. Say now, what's your right, sensible name? My Uncle Clinch likes all right and proper, he does."

"My name is Jean Jacques Morin," the Frenchman said gravely. "My mother always calls me Jean Jacques."

"John Jack?" Bess's pretty mouth twitched at this French absurdity. "Well, my Uncle Clinch will call you John or Jack, but he won't call you John Jack. He'd think that silly."

The blunt words did not disconcert the Frenchman, for he was used to Bess.

"Jean is John," he said quietly, "but Jacques isn't Jack ; it's James."

"Oh, come now!" Bess's face had been satirical : it became indignantly remonstrant. To be told that "Jean" was John, but that "Jacques" was not Jack, was more than she could away with.

"When words are the same I know what they are," she said sapiently, and added kindly, bestowing on the Frenchman a down look of her grand grey eyes—"You can't help your name bein' John Jack of course ; you didn't christen yourself, an' I'm not sayin' you did : but, if you'll be guided by me, you'll just say your name's John. I shouldn't say it in the French way, eether, if I was you ; that's so stoopid soundin'. My Uncle Clinch'd never leave teasin' you with 'Jong,' and, as like as not, he'd tease me too, for he's right down foolish when he gets to teasin'."

A little light for the first time came to the Frenchman's eyes. He was not fatuous, but he had outgrown childhood, and was deeply in love with this girl.

"It's very good of you to give me all this thought," he said gravely.

"One must think of something," was Bess's bluff rejoinder, as she flushed hotly at being thanked. "It came into my mind, an' I went round to my Uncle Clinch. I like goin' there. Like the walk. Can't bear stickin' in the house always. That don't soot me."

Having ended with a "*me*" emphatic enough

to suggest limitless egotism, and rob the Frenchman of whatever notion he might have had that some kindness underlay her acts, Bess said—

"Molly there—what's she goin' to do? You two ain't goin' to set up together, are you?"

The question took the Frenchman aback. There was no mockery in it—merely a tone that asked for information; and the grey eyes looked into his frankly. He was Frenchman enough to be somewhat baffled. In the absence of anything else that he might say suggesting itself to him, he said quietly—

"I don't know what Molly's going to do."

"Well, hadn't you better think?" came the prompt sneer. "Seems to me as you two wouldn't get on alone, for Molly don't take care of herself a bit. She'd be going without her dinner when you'd be away—my Uncle Clinch has his folks to meals. She wants looking after, Molly does. Seems to me as you might give that a thought."

From a person who much affected to have no altruistic promptings this was a very strong rebuke. The Frenchman did not wince. He was thinking what fine eyes the girl had, and much enjoying the play of light and fire in them; was also thinking what a fine mouth she had, and much enjoying the changing movement of the lips. He was thinking a number of other things that the love-smitten think, and, above all, was so wholly happy with this girl in great nearness to him, talking of him, thinking of him, that for the moment he forgot even his dead mother, and, in this curiously vacant mood, the precise drift of what Bess was saying became quite immaterial.

"I wish you could bring yourself to attend to me," she said sharply. "I've thought about Molly too"—Bess's need to occupy her thoughts appeared to have been very urgent—"an' I've spoken to Mrs. Bell, who's willin' to do for you both, about her. You see, it was plain to us all as your mother couldn't last over to-day, an' why, if my mother was to die, I'd be in such a fix an' grief I shouldn't know where to turn; so I set about doin' a few things for you, that was all; an' no need at all to say thank you, which I can't bear, an' it puts me out in talkin'." Bess was becoming incoherent in her desire to overcome interruptions. "Mrs. Bell says you'd better go over to her, both of you, with your bits of things, an' she'll look after you. That's when your mother's buried, of course. Now don't you go breakin' down, poor soul."

The girl's voice had become very soft, and again her hand was laid on the Frenchman's shoulder, and she looked down at him with kindness most majestic from her threefold dignity of greater height, of Britishdom, of girlhood fancy free.

At this moment the sharp whizz of a match being struck sounded from the other end of the room. Molly had waked from her sleep to see this couple in the window. Carried away by a sudden anger, she had struck the match, and was now lighting the lamp, with a face which was scarcely recognisable, such havoc as jealousy playing with it. Bess looked at her with amazement, the Frenchman with great annoyance. Then he signed imperiously, and the lamp was put out at once. There was a moment's silence, after which Bess said to him—

"Go an' look if Janet's still waitin' for me in the street. An' see here, you might cool your temper at the same time. There ain't no need to bully Molly, 'cause she's dumb, and can't say pig. You can go, an' you needn't hurry back."

The dismissal was not very gracious, and the Frenchman's face fell, but he went. Then Bess relighted the lamp quietly, and stood in the brilliance of it for a moment without speaking. After that she went over to Molly, who, like Ireland's daughter that she was, sat on the floor with her hands about her knees. There was nothing for it but for Bess to sit on the floor too. She did so, facing Molly; then she leaned towards the mute.

"I shall speak very slowly, Molly, an' you understand when you try to. Everyone knows you do. Me in love with your Frenchman, Molly!—it's right down ridiculous. Me! He may be good enough for you, Molly, but he ain't good enough for me."

A rude curl came to the proud mouth, matching the rude words, and Bess laughed gaily. Molly's black eyes grew dull.

"Are you angry, Molly?" was asked with great surprise. Deep anger was in the filmed eyes, and Molly nodded.

Bess's face became perplexed.

"I wish I could explain things to you, Molly, but I don't know what to say. Try to understand this, Molly—you're a good sort, an' I like you, an' I like him—he's a goodish sort, too, an' I always did like him from that high"—she paused to illustrate a height which had once been that of either herself or the Frenchman—"but, well, I ain't the girl to love a boy—I ain't really, so there! I'll tell you who I do love, Molly. It's my friend Janet, that I go out walkin' with. That's my way, an' I can't be different. If you was to get between me an' Janet I'd hate you, just like you hated me before, an' I'll never get between no one an' another. You can please yourself now, an' believe me or t'other thing. It don't concern me at all what you do; but I ain't a liar and I ain't a beast, though I'm nothing in partic'lar, not to say. Seems to me as you might believe me, Molly."

In Bess's quick transitions from proud to humble, from terse to tender, there was some lack of logic. The head might not be satisfied, but the heart was feasted. Molly unclasped her hands and extended them. She said nothing. She had many ways of speaking in spite of that tongue's dumbness, but there seemed no need for words.

The ideas of dumb and speaking run parallel in a surprising degree; and in the case of these two girls, the one of whom spoke with the full-heartedness of her nature, while the other with quick instinct heard inwardly, howbeit it is impossible to say how much was understood, still less possible to assert that every subtle word was grasped in its full bearing, this much remains indubitable, that the main drift of Bess's harangue was seized.

The English girl took the outstretched hands, then said—

"Where are you goin' to sleep to-night, Molly?"

To aid Molly in understanding the question, Bess smoothed an imaginary bed and closed her eyes languidly. She had throughout her talk with Molly illustrated her words with curiously primitive

pantomime. Molly watched her gravely, and pointed to the adjoining room. Death had no horrors for her, but Bess's face became troubled.

"No, you shan't sleep there. Come home and sleep with me."

Molly's head-shake said no, but Bess's said yes; and some three minutes later the two girls were in the street.

"Here we are, Janet!"—Bess spoke—"Night, John Jack. Molly's goin' home with me."

The Frenchman went back into the house alone, and betook himself neither to his bedroom nor to his mother's, but took up his stand at the window where he had stood with Bess. The sky was very clear and dark; there were no stars in it, but every now and again it was lighted up by summer lightning. Time passed without his noticing its flight. It was near midnight, and the lightning came like a smile to a sleeping face, lovely, fleeting, quite meaningless. Twelve—one o'clock struck. The flashes became fiercer, very vivid and terrible, with something of grimace about them. It was odd that lightning so strong and bright should not be followed by thunder. The great silence was very marvellous. Half-past three o'clock struck, and the lad shut down the window, for the face of the night had changed. A strong wind had suddenly sprung up and a small moon raced across the sky, taking dips into the clouds. There was no longer lightning. His face became drowsy, but dawn had already begun to break when he crept to his mother's room. Molly's bed ran along the foot of hers. He sat on the side of it, then sank back on it asleep. In his dreams it seemed to him that his mother was living still, and it was a great shock to him to wake in the full light of late morning and find that she was dead.

At noon he was standing with Bess outside Mr. Clinch's shop. Her introduction of him was short and to the point:

"This is John, Uncle. His mother's dead, an' I've told him you're goin' to take him on."

Mr. Clinch was standing before his shop. It was a good one of its kind, and its kind was of the best. Everyone likes a fruiterer's shop, and rightly. There are in it so many things that are pleasant to the sight and good for food. Andrew Clinch's shop was in a row of many little shops and one big one. At this shop, which called itself *The Association*, and which was at the corner of the small street from which it seemed to turn away into the bigger road, all things could be got except, said Andrew Clinch, attention. In the said big road there were two flower-shops, but in the small road flowers were only to be got from Andrew Clinch and the greengrocer, who both sold them in what they called "a small way." In wallflower and daffodil season they would have a row of jam pots filled with these flowers; they kept small posies of roses in the summer, and in the cold months kept a bundle or two of chrysanthemums. They had started doing this with an unhappy simultaneity which gave rise to the burning question—In the case of which of them had the thought come first by that brief space by which one thought

must, after all, precede another? Andrew Clinch believed a hairbreadth priority to lie with him, and called on the greengrocer, and politely put his view before this person. The greengrocer believed Clinch to be mistaken, but lacked the courage to tell him. His wife called on Mrs. Clinch, and begged her to use her influence with her husband. The upshot of the visits was that a coolness that had always existed between the two families increased till it reached the freezing-point, while, for the rest, the fruiterer and greengrocer both continued to sell daffodils and wallflowers in the spring, posies of roses in the summer, and in the winter bundles of chrysanthemums. The greengrocer was a mean-looking man, with an ossified face and hands, with a long chin and a little mouth, and with a thinly thatched head—such hair as there was on it being neither black nor white nor grizzled, but speckled, like a sparrow's egg. His hard cheeks had dimples in them, like the dimples in the hard cheeks of an apple, and he wore earrings. On his shop board was the somewhat uneuphonious name *Hugh Pugh*. It suggested as his home a land of the Western Gael, but the man was a Londoner, the descendant of generations of Londoners. Andrew Clinch, who had not a drop of English blood in him, was of a different type. He had been born North of Tweed, he opened his hand slowly, and his lips met as a man's lips meet to say "my." Nevertheless, his was not a mean face, howbeit also not one that suggested limitless generosity, but rather that good nature that is bounded on all sides by caution.

Just now he was listening with a sentimental expression to the playing of a bagpipe. A charming writer long ago mildly made answer to the words that a bagpipe makes more noise than music—"Not so, for 'tis all music, though not of the best." Music not of the best is perhaps the most charitable phrase in which one could describe the curious squeals to which Andrew listened with a far-away look and hands deep in his pockets from which, however, he did not take the copper coin which is all that the modest bagpiper demands. He was still in this softened mood when Bess appeared before him with the Frenchman, and said—

"This is John, Uncle. His mother's dead, an' I've told him you're goin' to take him on."

Mr. Clinch at once waked from his reverie.

"He's a towering big fellow, to be sure," was his comment, with a short laugh.

"Well, he ain't wanted to carry tombstones to an' fro to customers," the girl said dryly. The odd answer was probably the outcome of their standing opposite to an undertaker's, the duties involved by whose calling she misconceived. Still speaking with sharp sarcasm, she continued: "Where there don't seem to be room for a bee to set down comfortable except on a strawberry, it don't seem to me to be agen John that he isn' as big as *The Association*."

The effect of this speech was heightened by the fact that the fruiterer was vainly trying to catch a bee which flitted from one strawberry-basket to another. The mention of *The Association* was a masterpiece of surgery. It hurt horribly, but it

was a case in which it was needful to use the knife. Mr. Clinch changed his tone, and turned civilly to the Frenchman.

"The lass here has recommended you highly, an' she's not of those, as you see, that go about with always a sweetie on the tip of their tongue." He put his hand proudly on the girl's shoulder and glanced at her fine face with great approval, the love and liking that were in the act and look bringing a smile to Bess's mouth and eyes.

"You come behind the shop, lad, and we'll have a talk."

They walked through the narrow way that led between the fruit-baskets to the space beyond, where there was a desk and stool, and but little room for more. Andrew took up his post at the desk, and the Frenchman, after one backward look, stood patiently before the Scotchman and awaited his questions.

"You lookin' back at that lass—eh?" was the first and rather startling question, as Andrew's red face became redder, and a curious patch over one eye, much like that often to be seen over the eye of a bulldog, was brought into ugly prominence. The Frenchman was very pale, and a strained look came into his face, but he said in a clear and steady voice—

"Yes, sir."

"Well, then, it's like your impudence; but I'm pleased with your frankness, lad. I hate liars. Don't do it again, that's all. The lass is my heirsch, an' lookin' at her is lookin' a bit too high. See?"

"Yes, sir."

The voice was very civil, but very proud too. The pain in the face increased. It was very plain to the Frenchman that he could not aspire to the hand of a British heirsch, and life that wore a very sad look just now took a look that was even sadder. There was some business talk, and he turned to go.

"Come after the buryin', that'll do," the fruiterer said kindly. "We'll contrive to do without you till then. Where are you goin' now? Over the way?"—The Frenchman had silently pointed to the undertaker's.—"Poor lad! Poor lad!"

They reached the door, and a jam-jar filled with roses arrested the lad's attention.

"What can you give for it, John?" the Scotchman asked.

Jean produced sixpence in coppers, and Andrew took up the jar.

"There's a shillin's worth in it," he said; then counted the roses, and gave the Frenchman exactly half in return for his six pennies.

The bagpiper was still waiting without, and while the lad went over the road Andrew stood in his open door and listened to "Scots wha hae."

The French madam was buried next day. Molly followed her to her grave, and has not since been seen by Bess or Jean. She still makes artificial flowers, sitting beside a coke stove, with her gold-crowned head opening and shutting. She has only shifted her quarters in the great city. She still makes the heart of a rose out of cambric, and thinks it lovely—this with the heart of loveliness that is her own!



A GLIMPSE OF AMERICAN SCHOOLS.

VISITORS to the World's Fair in 1893, who began their investigation of the Exhibition with a tour round the Great Wheel, had a curious experience. First the marvellous white buildings came into view, then the startling blue of Lake Michigan, and suddenly there was revealed a mass of black smoke, which indicated Chicago in the distance. It seemed a strange thing that this black town should have thought out and produced anything so fairy-like as the white city.

"Have you
seen our
Schools?"

The largest building in the Fair grounds was that devoted to the "Liberal Arts"; and the catalogue, dwelling on numbers with the American delight in bigness, informs us proudly that "it is the largest building of this kind ever erected, its length being 1,687 feet and its width 787 feet. Its cost was \$1,500,000. . . . The floor alone consumed over 3,000,000 feet of lumber (*Anglicæ*, timber) and five carloads of nails. To say that this giant structure contains 44 acres of floor space gives but a faint idea of its immensity," and so forth through about a dozen lines, with an attempt to crush the unfortunate visitor under a

heap of figures. Round all four sides of the building extended a gallery fifty feet wide. The mathematically disposed reader is left to calculate for himself how much floor space such a gallery would provide, but the really curious point is this: three-quarters of this gallery space were given up to educational exhibits. This gives some indication of the important place they occupy in American minds, since it was held that no other exhibit could more fitly fill this huge area. Here is another proof of American idealism—a love of learning born amid the worship of dollars.

If an Englishman is asked on his return from the United States to sum up in a sentence the difference between the English and American school systems, he will probably answer that the Americans, as a rule, love their schools, and the English do not. The average Englishman is apt to look on the spread of education as a mere device for emptying his pocket, and complicating his domesticity by raising the children of the poor "above their station." The average American regards his public schools, in the first place, as a citizen-making machine, one that shall weld into

a homogeneous whole the fortuitous atoms sent to him from every part of the world—Americanise them, in short; in the second, as a truly democratic instrument, affording to rich and poor alike the best of the world's treasures. These are the factors that have produced the American common school system.

"Have you seen our schools?" is one of the first questions an American will address to a newcomer. Woe betide him if he replies that he is not interested in schools, for that marks him at once as outside the pale. If, on the other hand, he expresses a wish to see them, nothing can be easier. He needs but to walk in, make his desire known, and everything is open to him. Suppose we take advantage of this privilege to step into one of the large city schools, and see what we find there.

Education of
Boys and Girls
in America.

Doubtless the first thing that will strike our attention is the presence of boys and girls in the same class, often sitting side by side on the same benches. They do the same lessons; now a girl, now a boy, will be called on to answer, just as it happens. "Well, and why not?" we are inclined to say, when we have listened for a little while; it seems simple and easy enough, and, after all, it is the natural plan, and the separation of the sexes the unnatural condition. This, at any rate, is the view that most American educators take. "Not all are agreed on the general question, but there seems no difference of opinion with regard to the intellectual advantages. Boys and girls stimulate each other, and it is also said that the boys grow less rough and the girls less inclined to giggle. On the whole, the pupils seem to approve of the plan, though each sex has some fair ground for complaint: the girls because they are practically excluded from the playground, which seems the special domain of the boys; the boys because "girls do their lessons better," and therefore the honour of their sex forces them to work harder than they desire, not to be left behind in the race. The system appears to have grown up quite naturally, and its advocates plead that the separation of the sexes is artificial and contrary to the spirit of the home; also that the construction of two schools, with two sets of teachers, when one would suffice, is needlessly extravagant, and likely to lessen efficiency. Again, that feeling, of which we have seen so much in England, that the second-best thing is good enough for girls, and that inferior school-buildings, inferior teaching, and inferior salaries for the teachers are quite right and natural, seems happily non-existent in America. The best that can be obtained is the rightful due of girls as well as of boys, of poor as well as of rich—this is the doctrine of American democracy.

This brings us to the second point that will strike our attention—the mixture of class as well as of sex. Public schools in the United States are meant for rich and poor without distinction. There are no school fees, but there is no stigma of pauperism connected with attendance. The school offers its best to all, irrespective of class and sex; there is

no question as to the view of history suitable for a girl, the minimum of geography that may be offered to the future artisan; the school does the best it can for the young citizen. Those who do not like the teaching it offers can go elsewhere; there are many excellent private schools, and through being less hampered they are often able to do better work. But there is no more degradation attached to the use of the school provided by the community than there is for us in a visit to the British Museum or National Gallery. "My father pays taxes for the school, and so it belongs partly to us," said a little boy of nine to me; and this exactly embodies the view of the school as a public institution.

There are of course some obvious objections to the mixture of rich and poor, partly on intellectual grounds, since it is impossible for the "squatter's" child to work harmoniously with the sons of educated parents. Here a peculiarity of American towns comes to the rescue. Rich and poor districts are so entirely distinct that the mixture is far less in point of fact than might be expected, so that a geographical distinction does to some extent what an artificial one does with us. In small towns, where there are fewer schools, the mixture must be greater, but here the results are less serious, since the worst element of the population is wanting.

The School-
room.

When we have satisfied our minds on the questions of class and co-education, we may take a look round the building, to see how far it reminds us of schoolrooms at home. We shall probably find a good deal more space, unless we have by chance lighted on a very old-fashioned school, and then no doubt one of the teachers will tell us that an "appropriation" for a new building has already been made, and work will shortly begin on it. Separate desks are very common, though not the rule everywhere; and an English visitor cannot but be struck by the way in which American children exercise their right, as free and independent citizens, to do as they please in the matter of sitting, holding themselves erect or otherwise, much as the fancy takes them. Round three sides of the wall there is usually a blackboard, of dimensions which fill the English teacher with envy; and, if we have entered a junior class-room, we shall probably see on it some charming drawings of flowers or animals, done in coloured chalks, or a large illustration of some historical scene covering a whole side, and perhaps a few mottoes and verses of poetry. A glance at the board gives an idea of the work of the class. It has its use in the teaching as well. On the walls there may be pictures, in the large halls used for assembling there will probably be casts, and at least one "Star-spangled banner," to recall the privilege of his birth to the young American.

Methods.

If we look in while a lesson is in progress we are almost sure to see several members of the class standing by the board, each engaged on a different piece of work. The teacher may be sitting at her desk watching them, or she may be giving a lesson on another point to those children who remain at their places.

Perhaps the pupils at the board are working a Latin exercise, each translating one sentence, or they may be doing different sums, or practising their writing or drawing. When the work is finished it will be criticised; meanwhile they are left to themselves. Again you might happen to find a lesson in literature or natural science in progress, in which the class question each other, or the teacher calls now on this member now on that to "recite" on a given "topic," while she herself (for "teacher" is usually feminine in America) merely sits and listens, hardly interposing a remark or a question. It is impossible not to be struck by the amount of responsibility thrown on the class, and the more passive attitude of the teachers, and the contrast thus presented to our methods at home. An English teacher does three things at once: he (or she) expounds to the class, writes or draws on the board, and keeps an eye on the discipline of the class. The task of the American teacher is easier. The class keeps itself in order—indeed its dignity would be compromised by any other mode of procedure; much of the blackboard work is done by the pupils, and they, too, do most of the talking, and even when only speaking in reply to questions give their answers audibly and fully. Oral and blackboard work to a great extent take the place of our written home-lessons. Individual work is much commoner than with us. That subdued roar of simultaneous repetition which warns us of the proximity of a Board School is happily unknown on the other side of the Atlantic.

Subjects.

There is naturally not so much difference between the subjects taught in the two countries. If we choose our class at random, it is not unlikely that we shall find an arithmetic lesson in progress, for that is a very popular subject, and one in which young America excels. English children who go to school in the States have generally to be put back a class because of their weakness in arithmetic, and yet we also devote a good deal of time to it. American instruction in this subject is eminently practical. I was present when a class of young children was doing sums in simple interest mentally. A question was given out stating capital and time, but no rate of interest. The class proceeded undaunted to solve the problem to the teacher's satisfaction. The Head Master, who was present, said, laughing, "I could not do that sum; how did you do it?" The answer was unhesitating: "We did it with New York State interest, six per cent." In New York book-keeping with double entry is taught to the highest grade (or standard as we should call it) in the Grammar School to pupils of about 14 or 15, who are supposed by this time to have learnt all that arithmetic can teach. Nothing is more surprising than to find our own weights and measures in use in spite of the decimal money. It seems strange that so practical a people, yet so little reverence for the past, should not yet have abolished this senseless incubus.

Lessons in Patriotism.

Next to arithmetic, the favourite subject is probably history—*i.e.* United States history, beginning with Columbus in 1492, and not growing very full till the

landing of the Pilgrim Fathers in 1620. Some of our own children who begin with the Ancient Britons, and work their way through Roman invasion, Saxons, and Danes to the Norman Conquest, and then start in fresh detail from the Battle of Hastings, must envy their American cousins. The little history they do learn they know in every detail. The central feature is of course the War of Independence, the memory of which is preserved as vividly as though it only occurred yesterday. George III is still a wicked ogre; and the English are tyrants who lament even now that they cannot tread the virtuous American under their cruel heel. The United States is the only country in which men are noble and happy and free; America is the glory and envy of the nations. This "jingoism," which has its useful as well as its unpleasant side, is further encouraged by instruction in "Civics," elementary lessons on the constitution and government of the country. Such teaching must have a value everywhere, and nowhere so much as in a country which receives an enormous number of immigrants every year, takes them into its schools, as Irish, Russian, German, Italian, etc., and turns them out Americans and patriots. It is right that those who seek a new home in a hospitable land should learn the price at which that land has bought its freedom, and should join with the descendants of those first settlers, who sought a shelter from religious persecution in England, in singing:

"My country, 'tis of thee,
Sweet land of Liberty,
Of thee I sing;
Land where my fathers died,
Land of the pilgrim's pride,
From ev'ry mountain side
Let freedom ring.

"Our fathers' God, to Thee,
Author of Liberty,
To Thee we sing;
Long may our land be bright
With Freedom's holy light;
Protect us by Thy might,
Great God, our King."

There is much that is soul-stirring in the history of this "land of the brave and the free," and if Americans, both young and old, are a little too fond of the science of counting dollars, it would be hard to find a better antidote than the story of those first martyrs, whose memory Emerson has enshrined in the noble lines which begin—

"By the rude bridge that arched the flood,
Their flag to April's breeze unfurled,
Here once the embattled farmers stood,
And fired the shot heard round the world."

The spirit of patriotism is further fostered by the public holidays, always preceded or followed by some instruction about the meaning of the day. One of these is February 22, Washington's Birthday; and every little American, as soon as he can toddle and talk, learns the story of the great man who "could not tell a lie," and

who refused a throne. Decoration Day, May 30, commemorates the soldiers who fell in the War of 60-61, and on that day it is the custom to deck the graves of the fallen with flowers and small flags. One of the songs suitable for this occasion begins—

"We deck their graves alike to-day
With blossoms fresh and fair,
And in the grassy mounds of clay
We lay the flowers with care;
As o'er each sleeping hero's head
Our offerings we placed,
The brav'ry of our honoured dead
Shall never be effaced."

A festival that belongs specially to schools is Arbor Day. This is not a holiday, although no lessons are done, but the celebration takes place in the schools themselves. The object is to impress the pupils with the importance of tree-culture; and the reason for the institution lies in the wanton destruction of forests, which has already done so much to injure the American climate. Nebraska, which has suffered so much from devastation as to be called the "treeless State," was the first to adopt this custom, and the example was followed by many other States. On that day each school plants a tree, which is symbolic of the care which is to be given in future to the arboriculture of the State. Here is the programme of one of these Arbor Day celebrations at the Maryland State Normal School in Baltimore:

EXERCISES IN MAIN HALL.

Chorus: Give to us Peace in our Time, O Lord.

Scripture reading: Responsive.

Reading of Proclamation.

Song: "The tree we are planting this Spring Day."

Talk on the use and abuse of trees.

Song: Flower Dances.

Essay: Historic Trees.

Arbor Day leaves from the Poets.

A talk by the Principal.

Semi-chorus: "Consider the Lilies."

Military drill.

MARCH TO THE TREE.

Song: Planting the Tree.

PLANTING AND NAMING THE TREE.

Expression of sentiments.

Decorating class-tree of '91 with colours.

"Auld Lang Syne."

Of course the chief patriotic holiday throughout the State is the "Glorious Fourth," the anniversary of the declaration of independence; but this never falls in the school year, as it is the custom everywhere to begin the summer holidays before this date. It is impossible to give any general idea of the length of American holidays, as they vary considerably in different parts of the country, and are a good deal regulated by climate. In all matters relating to education, each State does as it pleases, for there is no national control of any kind.

Local
Authorities.

In fact, the United States afford an object-lesson in the extreme of decentralisation. Each State has its own school law, which has two sources: the State constitution and the Acts passed by the Legislature. The provisions of the constitution are general in their purport; while the State Legislature deals with such matters as the organisation of local boards, compulsory attendance, etc. Subject to these provisions, the local boards can, as a rule, do what they please. They have power to levy rates, arrange the courses of study, appoint and dismiss teachers, etc. The unit of local government varies in different States. Sometimes it is the city, sometimes the county, or perhaps there is a special school district, not coinciding with any other area. The amount of power exercised by the local board depends largely on the presence or absence of detail in the school law. The results are generally worst where the local unit is a small one and has a good deal of liberty; best where the law is stringent and there is a strong State Board of Education—as in Massachusetts. Yet, even here, the difference between a primary school in Boston and one in a poor country village ten or fifteen miles distant, is greater than anything that could be found in England. Hence it is almost impossible to affirm anything about American education that cannot be contradicted with equal authority. With one exception, all American States have a State superintendent, whose functions bear some resemblance to those of a Minister of Education. Each local body, whether county, city, or township, as a rule, appoints a superintendent of its own, whose duty it is to inspect schools, license teachers, and advise and instruct them in the details of their work. He is assisted by a staff of inspectors and supervisors, who visit schools under his direction, and share with him the work of examining children for promotion. Unfortunately, his usefulness is a good deal hampered by the fact that he is appointed by the local authority, and has to submit to frequent re-election; hence the office is in danger of being drawn into the vortex of party politics.

It is also impossible to make any general statement about the funds available for school purposes. In 1785 it was ordained that in any new States to be added to the seventeen then existing, a special appropriation of one-sixteenth of the public land should be set aside for the purposes of a school fund. In some cases this now brings in a good income, but many States sold the land at once to defray the initial expenses of erecting schools. All require help from local taxation, which usually supplies the funds for building and equipment, while the State money, and any State tax that is levied, is usually devoted to salaries. As to the amount of these, it would be equally impossible to generalise. Averages are low almost everywhere; in 1892 they were £70 in New York State, £60 in Maryland, £100 in Massachusetts. As some of the head teachers receive high salaries—e.g. in Boston the head master of a high school gets £700—these figures are perhaps even more misleading than the ordinary average. But it is certain that teachers in some of the country schools cannot receive more than a mere pittance, in striking con-

trast to that unpleasant and exacting person mis-called the domestic "help." Pupil-teachers are unknown, and the system is held in disfavour by educationalists.

In spite of all this diversity there is a good deal of similarity in methods throughout the States, and this is doubtless due to the fact that these points of resemblance have arisen naturally from the condition and requirements of the country. The chief points of agreement are these :

All public schools are free, and open to all who live in the particular district. There is no religious teaching in the public schools, this being regarded as the work of the Sunday schools.

In most States boys and girls are taught together.

In most States public schools are graded—*i.e.* school-life occupies about eight years, six to fourteen, divided into eight or sixteen grades (much like our standards).

Eight Grades. For the great mass of the community the eight grades of the primary and grammar schools represent the limit of education ; indeed, many are withdrawn without passing through all the grades, and on this account it is thought advisable to begin no subjects during these eight years, in which a fair amount of proficiency cannot be attained. Hence the exclusion of Latin, mathematics, all serious science, almost everywhere of modern languages, and of all history except that of the States. The time is devoted to "finishing" (a favourite American term) arithmetic, American history, geography, and grammar. Sometimes there is a little nature study ; most States teach drawing, and many have adopted a carefully graduated course known as the Prang system. Some few have made a beginning of Manual training, and here the city of Boston has been particularly successful.

Lectures in Hygiene. Most of the States teach a subject known as Scientific temperance. This is an interesting experiment, which is expected to serve eventually as a substitute for temperance legislation. Lectures are given in elementary hygiene, with the object of demonstrating the deleterious properties of alcohol, and thus sending out an army of teetotallers from the schools. Now and then the methods employed for bringing home these facts to young minds seem a little comic. In a pile of copybooks from a New York school were these lines, which had served as a dictation lesson :

"Eat the simplest food,
Drink the clear cold water,
Then you will keep well,
Or at least you ought to."

The concession in the last line almost compensates for the pronunciation it involves.

The High School.

Although school-life ends for the majority at fourteen or earlier, this is not from any lack of higher schools.

Those whose parents can afford to give them further leisure for study find another institution ready to receive them without payment of fees. This next stage is the high school ; the instruction is the same for both sexes, even if, as in Boston, the schools for each are distinct. The high school prepares its pupils for college, but there is usually a choice between several distinct courses—*e.g.* a Latin course (including Latin and Greek), an English course (including Latin and a good deal of mathematics), or scientific and commercial courses. Sometimes there is a manual training course, but this is usually relegated to a separate building.

The manual-training high schools bear some resemblance to our organised science schools, since in both the scientific and manual teaching are the essentials, and the literary training of secondary importance. As in England, many of them are being started in connection with some polytechnic or other technological institution, and no one who has seen the princely equipments of the Drexel Institute at Philadelphia, the Pratt Institute at Brooklyn, and the Armour Institute at Chicago, can fail to be impressed with the splendour of private munificence in America.

Colleges and Universities. Beyond school life come the colleges and universities, some private, some public. The latter class often give their instruction free or at a nominal charge, and it is no uncommon thing for poor students to contrive by work on a farm or as hotel waiters in the summer to earn the expense of their board in winter. Such work is considered honourable, and is one of the noblest features connected with the American universities.

Thus this great Republic offers freely to its citizens teaching from the Kindergarten to the College, and it is this unstinted generosity that is the really distinguishing feature of its schools. In a country where the contrast between wealth and poverty is as crude and startling as in America, where organisations both political and economic exercise such disastrous tyranny that one is almost tempted to doubt whether any real freedom remains there, this school system stands forth to hold up and pass on the torch of liberty, to recall to its citizens the noble words with which the Declaration of Independence opens, "that all men are created equal ; that they are endowed by their Maker with certain inalienable rights ; that among these are life, liberty, and the pursuit of happiness," a sentiment which is supplemented in the constitution of almost every State by these words : "Religion, morality, knowledge, being necessary to good government and the happiness of mankind, schools and the means of education shall be for ever encouraged."

ALICE ZIMMERN.

THE RISE OF THE ROYAL SOCIETY.

BY HERBERT RIX, B.A., LATE ASSISTANT SECRETARY TO THE SOCIETY.



THE ROOM OVER THE GATEWAY, WADHAM COLLEGE, WHERE THE FIRST MEETINGS WERE HELD.

NO Englishman who loves his country or cares for her greatness should be ignorant of the history of the Royal Society, for that history embraces the names and deeds of some of England's greatest sons. Neither can any student of the present century, which is so pre-eminently the century of Natural Science, afford to overlook the leading scientific society of Great Britain, in whose comprehensive embrace the several aims of the special societies are gathered, and which performs, moreover, an important social function in being the main channel of communication between the Government and the scientific world.

The present article deals with the rise of the Royal Society, and the history of its early years. It took its rise in a period which was not only one of the most fruitful in the story of England's political freedom, but was one of the most important also in the story of her intellectual progress. The date of the first charter, and the date, therefore, of the name "*Regalis Societas*," which by that charter was conferred, is 1662, but long before that year the Society had in fact a more or less definite existence. We can certainly trace it back to the year 1645, when, as the letters of the great mathematician Wallis declare, weekly meetings were held of "divers worthy persons, inquisitive into natural philosophy and other parts of human learning." These "inquisitive" persons met sometimes in Dr. Goddard's lodgings in Wood Street, sometimes

at the Bull-head Tavern in Cheapside, and sometimes in Gresham College. They were not yet, in the strict sense, a "Society," for they had no local habitation and no corporate name. Robert Boyle speaks of them in his letters of this date as "*The Invisible College*," but that was doubtless a half-playful title, personal to himself, and not recognised beyond his own immediate circle.

Similar meetings to those of the London philosophers were held in Oxford in 1648-9, and, indeed, the oriel-windowed room over the gateway of Wadham College is usually regarded as the birth-place of the Royal Society; the great weight of Boyle's presence and influence, and the importance to the "*New Philosophy*," as it was called, of those who gathered round him as their personal centre, giving to the Oxford meetings a special importance. These two streams, the Oxford and the London, united in 1659, when certain of the Oxford philosophers, some of whom for political reasons had been deprived of their chairs in the University, came to London and joined their friends at Gresham College.

Now, there was a day-dream, a delightful vision, in which these worthies indulged. Often they talked it over, but for a long time nothing came of it. They dreamt of a new college to hold the *New Philosophy*, a sort of Baconian University, where nothing should be taken for granted, and where students who revolted against hearsay might

gather together and question Mother Nature herself. Each of the philosophers had his pet scheme. Evelyn, the diarist, proposed to purchase thirty or forty acres of land within five and twenty miles of London, "of which a good part should be tall wood" (one is reminded of his "*Sylva*"), "and the rest upland pastures, or downs, sweetly irrigated." Upon this were to be erected a refectory, library, and withdrawing-room, and on the second storey "a fair lodging-chamber, a pallet-room, gallery, and a closet; all which should be well and very nobly furnished." There was to be a chapel and "an laboratory with a repository for rarities and things of nature." Morning prayers were to be at six in summer, dinner at one, evening prayers at seven, and to bed at nine. Evelyn declared to Boyle that he would cheerfully devote his small fortune towards it, and asked Boyle to join in the design.

Cowley had a similar scheme for a college near London, with sixteen resident professors and four travelling professors, who should travel in the four corners of the world. There were also to be "sixteen young scholars, servants to the professors; a chirurgion; a baily for the revenue; a maniple for the provisions of the house; two gardeners; a master cook, an under cook; a butler, an under-butler . . . an officer to feed and take care of all beasts, fowl, etc., four old women to tend the chambers," and so forth. Sir William Petty's scheme was for a college to contain in particular a "Gymnasium Mechanicum, or College of Tradesmen; where able mechanics, being elected Fellows, might reside, rent free"; also a botanical theatre, an observatory, menagerie, etc.; in short, that an institution or academy should be founded, whose members "would be as careful to advance arts as the Jesuits are to propagate their religion."

Alas! all these glowing plans crumbled beneath the touch of stern necessity, and for many a long year the Royal Society carried on its work on a much humbler scale than this, and in far less ambitious quarters.

One memorable Wednesday in 1660 (it was November 28), some of the leaders of the movement met together at Gresham College, "to heare Mr. Wren's lecture." Those present were Mr. Wren himself, better known to us as Sir Christopher; the Hon. Robert Boyle, whom an ancient joke calls "the father of Chemistry and the brother of the Earl of Cork"; Sir Robert Moray, a man of some influence at Court, and one of the most energetic of the early members; Lord Brouncker, who afterwards became the Society's first President; Dr. Wilkins, whom Aubrey in his "*Lives of Eminent Men*" speaks of as "the principal reviver of experimental philosophy at Oxford"; Dr. (afterwards Sir William) Petty, who two centuries ago invented a manifold letter-writer, and whose double-bottomed boat, the prototype of the *Calais-Douvres*, may still be seen at the Royal Society; Mr. Bruce, Sir Paul Neile, Dr. Goddard, Mr. Ball, Mr. Rooke, and Mr. Hill.

After Mr. Wren's lecture these worthies "did, according to the usuall manner withdrawe for mutuall converse," and among other things which they conversed about was "a designe of founding

a Colledge for the promoting of Physico-Mathematicall Experimentall Learning." At this meeting a journal-book was opened—the first of a series of such manuscript books, which from that day to this remain in unbroken series in the possession of the Society. Also another matter, more important even than the minute-book to any new society, was instituted—namely, a subscription. It was fixed at a shilling a week, and a list of persons likely to care for science to that pecuniary extent and to be useful and suitable members was drawn up. On the following Wednesday Sir Robert Moray brought word that the King approved the design of the meetings; and the Society may now be considered fairly afloat. In October 1661, King Charles offered to be entered as one of the Society, and in the following year the Society was incorporated, the charter of incorporation passing the Great Seal on July 15, 1662.

In its nebulous stage the Society had had no regular meeting-place, although it met most frequently at Gresham College. It was impossible, indeed, in those troubled times to preserve any great degree of regularity. Thus, we read in a letter of Dr. Sprat to Mr. Wren, written in 1658, that he had gone to Gresham College one Wednesday, and had found the whole place turned into a barrack, and in "a nasty condition, defiled, and the smells infernal"; and Matthew Wren, in a letter to Christopher, tells how, on a similar visit, he "was stop'd by a man with a gun, who told him there was no admission, the Colledge being reform'd into a garrison." But from 1660 Gresham College became the regular place of meeting, and from Wednesday to Wednesday at three o'clock the philosophers met together in that place to exhibit and discuss their experiments.

And, now, what about these same experiments and discussions? It would be easy to make such a selection from them as to represent the science of the time as already far advanced. And so, indeed, in some branches it was. A decade which numbered Newton and Boyle among its men of science was no age of ignorance, and in biological science, Harvey, it must be remembered, had already discovered the circulation of the blood. But the rank and file of the scientific men of that day were credulous in the extreme, and one often smiles as one reads their letters and diaries, or the accounts of their experiments.

The following may perhaps serve as specimens of the kind of matters dealt with at the Royal Society's meetings about this time. On July 24, 1661, "a circle was made with powder of unicorn's horn, and a spider set in the middle of it, but it immediately ran out severall times repeated." On September 4, "Sir K. Digby brought in a letter from a friend of his in Florence, written in 1656, which treats of a petrified city and inhabitants." But amid such fabulous matters as these, we find Boyle exhibiting his experiments on the compression of the air with "quicksilver in a crooked glasse tube," and we read how on January 29, 1662, "the Lord Embassadour of Genoa gave the Society a visite, and was entertain'd with the sight of Mr. Boyle's Engine for the Exsuction of Aire." This original engine, now

generally called an air-pump, is still to be seen in the apartments of the Society.

Mr. H. B. Wheatley, the well-known editor of Pepys, cited, at a meeting of the literary club known as "The Sette of Odde Volumes," some interesting passages from the diary written at the period we are discussing, which amusingly illustrate the credulity of the time in scientific matters. By his kind permission I select the following :

"I have been elected a member of the new Society which meets at Gresham College, and I went to a meeting on Wednesday [June 5, 1661] last, when Sir Gilbert Talbot promised to tell us all he knew of sympathetical cures, and he asked those members who had any of the powder of sympathy to bring some of it at the next meeting. Sir Kenelm Digby lays great store by this, and I will ask him to give me some. Colonel Tuke told us of the corn that came down like rain near Norwich, and Mr. Boyle and Mr. Evelyn were desired to sow some of these seeds and see what comes of them. Some of the members, when asked to give their opinion, refused to do so till the report was proved true. Colonel Tuke told me this did not trouble him, as he knew many places where it had rained wheat. I went home mightily pleased with what I had learned, and determined to attend the meetings as often as possible."

"I have not been to Gresham College for some months, but at the last meeting I heard Mr. Long remark that he had seen a steel breastplate so tough that it could not be pierced by a bullet. Methought this would be a mighty fine protection, but I somewhat doubt it. I will enquire further about this."

"Sir Robert Moray was desired to procure fuller information concerning the way used on the coast of Coromandel for the cooling of drinks by exposing them in bottles to the scorching heat of the sun all day long. I don't believe this."

"Went on Wednesday to the meeting of the Philosophers. Sir Kenelm Digby read a letter sent to him out of the Palatinate, concerning some children snatched away in those parts by beasts that had the appearance of wolves, but found killed after so strange a manner that all people thereabout surmised that they were not wolves but lycanthropi. Some of our members are so far carried away by scepticism that they even doubt if men can become wolves. I have heard so many tales of werewolves from worthy men that I believe them true. However, 'The Society judged that the truth of the matter of fact ought to be well attested before anything be pronounced of it.'"

To the modern reader it does not seem that the 17th century philosophers were so "carried away by scepticism" as Pepys opined. Even Henry Oldenburg, the Secretary of the Royal Society, of whom we shall presently have to speak more fully, was very ready to accept, or at least to consider as credible, the most ridiculous tales. In his letters to Boyle we find accounts of "pulverised and sowne cockles irrigated by sea-water," and of a wonderful oil which healed "migraines, palsies, lamenesses, crookednesses, and all ricketting diseases"; and in a letter to Hartlib he mentions a "clever but very secretly acting" physician in Paris, who had discovered a method by means of which one can prepare a drink from sunbeams!

It is, however, to be noted that although the early members of the Royal Society, living in a credulous time, were often credulous, they were nevertheless animated with the scientific spirit. They were determined to "prove all things" and to this end they took endless pains in setting experiments for the members to try, in corresponding

with like-minded men in all parts of the world, in commissioning travellers to make definite observations for them in any distant places to which they might be going, and in sending lists of questions to foreign countries for answer. Thus, the first volume of the Society's "Register-book," which was opened on January 2, 1660-1, contains a list of "Questions propounded and agreed upon to be sent to Teneriffe by the Lord Brouncker and Mr. Boyle." These questions, twenty-two in number, are, as Weld, in his "History of the Royal Society," observes, "the first measures taken by the Royal Society to procure authentic information of the natural history and physical condition of foreign countries, respecting which the greatest ignorance prevailed."

Acting in the Baconian spirit, the Society especially employed itself at this early period of its history in collecting data and observing phenomena. They frequently granted under the great seal of the Society "Letters recommendatory" to intelligent persons who were going abroad, requesting all who were in authority to receive the bearer kindly and to aid him in his scientific pursuits, and by this means they collected much information. They also employed collectors to add to their museum. Thus, in 1667 Thomas Willisel was engaged to collect zoological and botanical specimens in England and Scotland, and for this purpose was armed, not only with funds, but also with a certificate recommending him "to all generous and ingenuous spirits." Evelyn gives in his Diary an account of the wanderer's return from "his autumnal peregrination," when he laid before a meeting of the Society the specimens which he had collected.

More might have been done in this way had the Society been able to afford it, but in its early years it was miserably poor. Even the one shilling a week which, as mentioned above, was the amount of contribution fixed for each Fellow, was by no means regularly paid. In the Birch MSS. (No. 4441), at the British Museum, is preserved a memorandum in Oldenburg's handwriting, of which the following is the heading :

LISTE OF MEMBERS Y^e ARE LIKELY TO PROMOTE Y^e
DESSEIN OF Y^e R.S.

Members y ^e will probably	Such as will pay, and pro-
both pay and give yearly one	vide an entertainment to be
entertainment to y ^e Society.	made by others.

In the first column are written, among others, the names of Newton, Grew, Pell, Mercator, Hook, Collins, and Smethwick, but against all these names are written the words "no pay." The "no pay" element was, in fact, one main difficulty of the new Society, and it continued for some time to be so, for in 1666 the arrears had mounted to £600 sterling, and in 1673 to £1,957, notwithstanding strenuous efforts on the part of the Secretary to collect the contributions. In fact, at the latter date, out of 156 Fellows only 53 paid regularly.

The man who came off worst on account of this continued lack of "the needful" was the devoted Secretary, Henry Oldenburg, who for several years

served the Society without remuneration. This remarkable man, of whom Prof. David Masson has said, and with reason, that without his endeavours, together with Hooke's, the Society would scarcely have held together, was the son of a German professor. He had come to England as the agent for Bremen in certain negotiations which were going forward with the English Commonwealth. He was entered as a student at Oxford, and was speedily fired with the newly kindled scientific ardour. Afterwards he travelled on the Continent as tutor to Richard Jones, Boyle's nephew, returning after three years' absence in time to take part

much more to the same effect, winds up with a "Query. Whether such a person ought to be left vn-assisted?"

It was mainly to meet this difficulty that in 1664 the "Philosophical Transactions" was begun, a publication which has continued in unbroken series to this day, and which is now of world-wide celebrity. Poor Oldenburg must live, that was certain, and it was thought that perhaps he might make something by printing selections from the scientific correspondence which, in the service of the Society, he maintained with all parts of the world.



THE MEETING ROOM.

in the inauguration of the new Society. He was a friend and correspondent of Milton and of Spinoza, a man of great ability and enormous energy, but neither ability nor energy was turned into money-making channels. There is a pathetic little document in the British Museum in which poor Oldenburg, after recounting how faithfully he attends "the meetings both of y^e Society and Council; noteth the observables said and done there, and digesteth y^m in private," how, moreover, he "solicits the performance of tasks recommended and undertaken . . . entertaining a corresp. wth at least 30 psons, and takes much pains in satisfying forran demands about philosophicall matters," and

It was an odd little journal which in this way came to birth. The first number consisted of sixteen small quarto pages, printed in quaint type on excellent paper (and here I may remark that to this day the tradition is observed of printing the "Philosophical Transactions" on paper made specially for the Society, and entirely of rag), and contained such matters as "An Account of the improvement of Optick glasses," "A spot in one of the Belts of Jupiter" seen by "the ingenious Mr. Hook," and "An Account of a very odd Monstrous Calf." From a monetary point of view the venture was no great success. Oldenburg was expected to undertake all the risk as well as

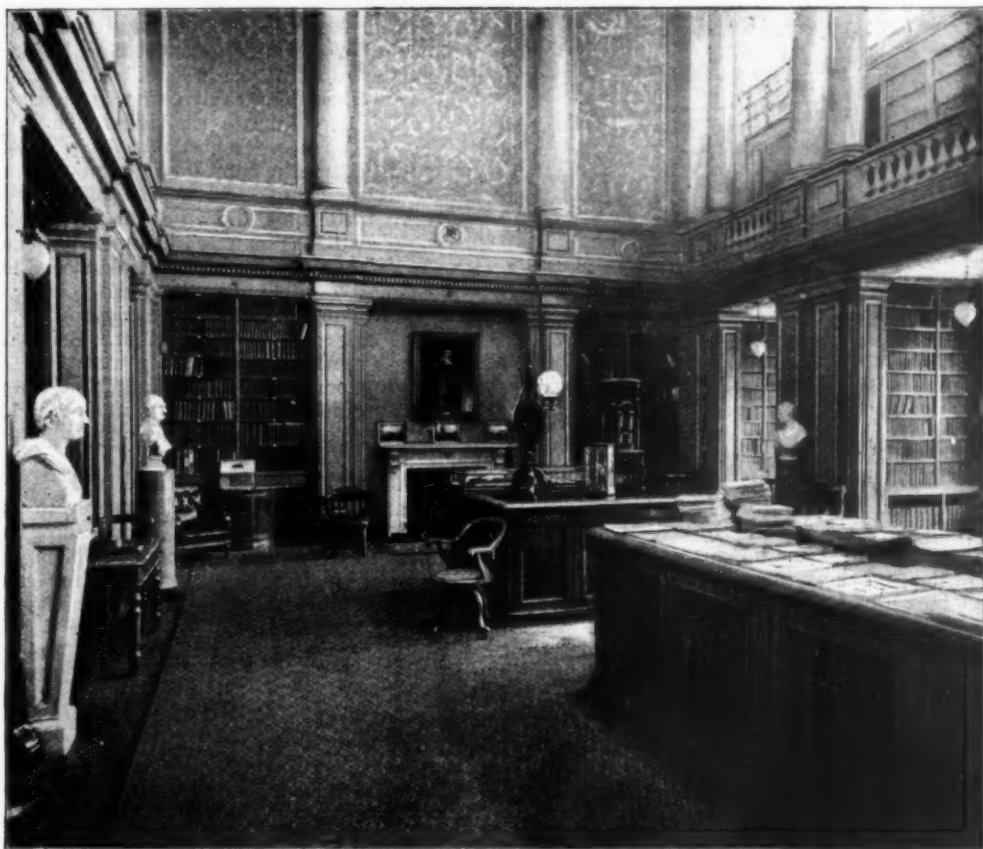
the responsibility of the publication, and it seldom brought him as much as forty pounds a year.

The next year (1665) the Plague appeared in London, and on June 28 the meetings were discontinued. Most of the Fellows left London, being previously "exhorted by the President to bear in mind the several tasks laid upon them, that they might give a good account of them at their return." The faithful Oldenburg, however, remained at his house "in the middle of the Pal Mal" throughout this dreadful period. Sometimes, indeed, he

of £100, of "the collection of rarities formerly belonging to Mr. Hubbard." This museum, before the British Museum, which finally absorbed it, had come into existence, was the most famous in London.

But alas! the philosophers had scarcely gathered together before they were again dispersed, for the Great Fire of London followed close upon the heels of the Plague. In the very week before this happened, the Society, all unconscious of impending disaster, was planning a great experiment—the experiment, namely, "of transfusing the blood

PORTRAIT OF LORD BACON. BOYLE'S AIR-PUMP.



NEWTON'S SUN-DIAL.

NEWTON'S CHAIR.

NEWTON'S TELESCOPE.

PRIESTLEY'S ELECTRICAL MACHINE.

THE LIBRARY.

wavered, and he wrote to Boyle on July 4 that if the plague should "come into this row" he should go into the country. His chief anxiety was about the books and papers of the Society, which he proposed to put into a box and seal it "that so in case the Lord should visit me, as soon as I find myself not well, it may be sent away out of mine to a sound house."

This trouble over, the Society again became active, and in 1666 turned their attention to the formation of a museum, the nucleus of which was formed in February of that year by the purchase, for the sum

of one animal into the body of another," and Hooke, the Society's demonstrator, was ordered to make the necessary preparations for the following Wednesday. Before that Wednesday came the city was in ashes, and under date September 12 we read the following entry in the Journal-book: "The Society being taken up with the considerations of the place for their future Meetings in this time of publick disorder and unsettlement, by reason of the late sad Fire, was thereby hindered from making experiments, and discoursing of philosophicall matters, as they use to doe."

Immediately after the fire there seems to have been a race between some of the F.R.S.'s to bring to the King's notice plans for the rebuilding of London. Hooke devised one plan, Evelyn devised another, and Sir Christopher Wren, as we all know, devised a third. In a letter to Sir Samuel Tuke dated September 27, Evelyn writes, "I presented his Majesty with my own conception, which was the second within two days after the conflagration, but Dr. Wren got the start of me. We often coincided."



Solar Dial
made by
Sir Isaac Newton,
when a boy, at
Woolthorpe.

DIAL TAKEN OUT OF THE WALL OF THE MANOR HOUSE,
WOOLTHORPE.

By the Great Fire the Royal Society was turned out of house and home. Not that Gresham College was touched, for the Fire did not extend beyond the end of Bishopsgate, but then, as now, science took a back seat when it came to the pinch. Whatever happened to science, commerce must be carried on, and as the college was required for the use of the Lord Mayor and merchants, it became necessary to seek some other place of meeting. Ultimately the Fellows were invited by Henry Howard of Norfolk to meet in Arundel House, and accepted the invitation.

In January 7, 1667, therefore, the Society commenced to meet at Arundel House, and in the same month Mr. Henry Howard presented the Fellows with "the Library of Arundel House, to dispose of as their property, desiring only that in case the Society should come to fail, it might return to Arundel House." Thus was laid the foundation of the magnificent collection of scientific works, numbering nearly 50,000 volumes, which the Society at the present time possesses. A portion of the original Arundel Library is still extant at Burlington House.

Close upon the disasters of 1665 and 1666 followed a third and yet more cruel blow in 1667. For in May of this year the Fellows learned with dismay that their indefatigable Secretary, Henry Oldenburg, was imprisoned in the Tower on suspicion of carrying on political correspondence with people abroad who were obnoxious to Charles II. and his Government. How seriously this event

was taken by the Society is evidenced by the fact that from May 30 to October 3 no meetings were held; also that no record of or allusion to it was admitted into the Council Minutes or Journal-books of the Society. The fact appears to be that the immense number of his foreign letters had attracted attention. The Royal Society had, as Oldenburg wrote to Governor Winthrop of Connecticut in this very year, "taken to taske the whole Universe," and its Secretary was therefore a man of many letters. The Government of that day had no notion of a man wanting to collect facts from all parts of the world from the mere love of knowledge, and so they put him into prison, which seemed the safest thing to do. Poor Oldenburg was kept there only for two months, "during which commitment," as he afterwards wrote to Boyle, he "learned to know his reall friends."

Among these friends was Evelyn, who, as his famous Diary informs us, visited him in the Tower on August 8. After his discharge he went down into the country to recruit. "I was so stifled by the prison air," he writes on September 3, "that as soon as I had my enlargement from the Tower, I widen'd it, and took it from London into the country, to fann myself for some days in the good air of Craford, in Kent. Being now returned, and having recovered my stomach, which I had in a manner quite lost, I intend, if God will, to

fall to my old trade, if I have any support to follow it."

Oldenburg fell to his old trade with his old vigour, and it was largely by his energy that the fame of the Society speedily spread throughout Europe. In 1669 the celebrated Malpighi, then Professor of Medicine at Messina, sent his work on



IRON CHEST GIVEN BY MR. BALL,
A FOUNDER, IN 1663.

the "History of the Silk Worm" to the Society for publication under their auspices; and two years later Leibnitz dedicated his "Hypothesis Physica Nova" to the Society. Many other foreigners of less

fame did the like. In fact, the Royal Society was now not merely afloat ; it was famous.

With the fame of the Society there followed, it is true, that which fame so often brings, detraction. Dr. Stubbe, a physician of Warwick, the Rev. Robert Cross, Vicar of Great Chew, and many others, indulged in violent abuse of the Society. The Fellows were accused of undermining the Universities, of destroying the established religion, of upsetting ancient and solid learning, and what not. But no detraction could dim the glory shed upon the Royal Society by one great name which was now to be recorded in its rolls.

A youth of five or six and twenty invented at Cambridge a new form of telescope, the first perfect reflector invented, and some time later made a working model of the invention and sent it, with a description, to the Royal Society. The telescope was examined by King Charles the Second, who graciously approved the same ; also by the President and Fellows, with the ultimate result that under date December 21, 1671, the Journal-book records that "the lord bishop of Sarum proposed for candidate Mr. Isaac Newton, Professor of the Mathematicks at Cambridge." Newton was elected a Fellow January 11, 1671-2, at the age of 29, and from this time to his death his connection with the Society was very close.

This is not the place to record the scientific triumphs of this great man. Nor is it, indeed, needful to tell again an oft-repeated story. Suffice it here to say that in 1703 Newton was elected President, an office which he held for four and twenty years. A contemporary portrait hangs above the President's chair at this day, for if Bacon was the Society's spiritual father, Newton is and ever has been regarded as the greatest of her sons.

With his advent the story of the rise of the Royal Society may fitly be considered to close. Its continued life was now assured, and the glory of Newton's name, once given, could never be taken away.

Charles R
founder.

The Loveliest Thing in the World.

WHAT is the loveliest thing in the world,
Baby, my Sweet ?
The primrose pale in the morn dew pearled ?
Or the baby-ferns with their wee fronds curled ?
The wild hedge-roses fair and shy ?
The silvery moss where the fairies lie ?
Or the soft white mist in the deep blue sky ?
O what is the loveliest thing in the world,
Baby, my Sweet ?

A tender flower is the sweet wild-rose,
Baby, my Sweet !
Her heart it is stolen before she knows,
For a sunbeam comes and his strong love glows,
And he finds the heart of the sweet June rose ;
Softly she flushes, her freedom has flown,
And her lover has won her heart all for his own.
O a tender flower is the sweet wild-rose,
Baby, my Sweet !

In the deep blue sky there's a faint little mist,
Baby, my Sweet !
A lovely, floating baby-mist.
It was once a wee cloud that the sun-rays kissed,
And it melted away for love ere it wist.
Ah ! a beautiful thing is the soft white mist,
Baby, my Sweet !

O fair is the moss with its silvery shine,
Baby, my Sweet !
The generous moss with a heart so fit
That it will not catch and cling and twine

Round the lovelight that comes from the far-off sky,
Nor bury it deep in its treasure-mine.
Nay, it holds its joy for a use more high,
And showers it forth with a silvery shine
To gladden the eyes of the wanderers by.
O dear is the moss with its heart so fine,
Baby, my Sweet !

But O ! there is something lovelier far,
Baby, my Sweet,
Than the fragrant spirit-like primrose star,
Or the radiant moss, or the frail June flower
Breathing love in its life's glad hour,
Baby, my Sweet !

All these are lovely, but Mother, so wise,
She knows what is lovelier far,—
A precious wee baby with great blue eyes
That shine like a primrose-star,
And a flush as fair as the sweet wild-rose,
And dear little curled-up fingers and toes
Like the baby-ferns, and as soft and white
As the mist that melts in the morning light—
A precious wee baby that learns of love
From the eyes of the Mother who bends above,
But, like the moss, with a heart so fine
That he scatters it back in a shower of shine,
And blesses his Mother's heart with joy,
Till she longs to sing of her baby-boy,
Baby, so sweet !

NOTES ON THE "ZOO."



FROM A PHOTOGRAPH.

THE Gardens of the Zoological Society, popularly known as the Zoo, are among the chief sights of London. Since their establishment some sixty-eight years ago, they have been visited by close on thirty millions of people. They have now over six hundred thousand visitors a year, and

sometimes they have more, as in 1876, when the Indian Menagerie of the Prince of Wales was temporarily housed in them, and brought the numbers up to the best on record, 915,000.

They are not the first Zoological Gardens. That honour, among the moderns at any rate, is claimed

by the Jardin du Roi of Louis XIV, now the Jardin des Plantes, for which Buffon did so much, and which only escaped destruction at the Revolution, as being a "garden for medicinal plants and a laboratory of chemistry, otherwise a manufactory for saltpetre." The Revolutionists were not friendly to science—as witness that little affair as to Lavoisier—and in 1800 Delaunay was ordered to kill the least valuable animals for the others to feed on, an order which brought Cuvier to the rescue, and practically put the Paris garden out of danger.

There are other zoological gardens abroad, some of them extensive and rich in rare specimens, many of them on a small scale, mere places of amusement and refreshment with the animals thrown in; and none are exactly like ours, which were opened in the Regent's Park two years after the foundation of the Society by Raffles and Davy in 1826. Since then the Society has not increased much in the number of its fellows, but the receipts from the public have grown considerably, and now amount to £27,000 a year.

The present animals are valued at £23,500, the vertebrates alone numbering over 2,300, of which about 1,300 are birds and 350 reptiles. It is a fine collection, and every year the Gardens improve, though the loss of a specimen now and then that was a conspicuous feature may make some difference in the attraction. About 1,200 animals are added every year, half of them presented, a fifth of them deposited, a sixth of them purchased. The death rate is naturally high, about 379 per thousand, the birth rate being some 39 per thousand; but these figures are gradually altering for the better. Fifty years ago the lions and tigers and their kin were kept in a stuffy room artificially heated all the year round, and they only lived two years, one dying every month. Then the terrace was built, and in the open air their expectation of life greatly increased. In process of time came the new lion house, with further improved conditions, and now many of the inmates live long enough to become quite old acquaintances.

As with the felidæ so with the others. It is really wonderful how long some animals will live a contented life in captivity. For instance, there was a polar bear which died in 1880, which had been in the Gardens ever since 1848, and a year or so ago another polar bear died which had been there for twenty-three years. It is not only the natives of the Arctic and temperate zones that live long. How kindly the elephant takes to acclimatisation, now that his management is more understood! There are about 140 elephants in Europe, most of them thriving. They do best at Amsterdam, where the conditions seem to suit them, but they do next best in Regent's Park. There was Jumbo, who reached the gardens when four feet high and weighing 700 lbs. Owing chiefly to his daily bath in hot weather, he grew from four feet to eleven feet in sixteen years, when he apparently became some twenty-three years old. In a year with Barnum he increased a ton in weight, and he met with his fatal accident when still short of his full height, for an elephant reaches his prime in his thirty-fifth year. African elephants are scarce now owing to the Dervish power at Khartoum having

throttled the trade of the Soudan, but Indian elephants, mostly from Burma, are plentiful enough, and you can get a young one for £120 delivered at the docks. There are a pair now in the Zoo which were quite small things when they came in 1876, and are now over nine and ten feet high. Elephants are the most profitable of all animals to keep, for they more than earn their cost. In a year the "riding receipts" of the Gardens amount to as much as £680, nearly all of which are due to the elephants.

Of course the Zoo is but a small place compared to what it may become in the future, when we know more of the mysteries of the tropical forests and ocean depths. Every year new species, chiefly of small size, find their way to it, most of them to last but a few months, owing to their treatment being more or less experimental. Considering the abundance of animal life, the collection seems to consist of but a few well-known species and represents but a limited range. This is really because the larger animals are most talked about and looked for, and it is thought that no menagerie is complete without them. Unfortunately, the larger animals are becoming so rare that it is not easy to replace them. Animals are like coins; it is the old ones going out of circulation that are the more valuable, not the novelties which may at any time become numerous.

Thus it is that the acquisitions to which most importance is attached are those that take the place of the friends of our childhood that have passed away. Perhaps the greatest of recent acquisitions is the giraffe. The first giraffes the Society secured came in 1836. Thibaut, the collector, went specially out to catch them. He got to Kordofan, and there engaged the services of some Arab sword-hunters, who in two days sighted a herd, killed a female and caught the fawn. Four others afterwards caught died in the desert, but three more were subsequently obtained, and with the four Thibaut came down the Nile to Alexandria, and from there reached Malta in November 1834. To bring them from Malta cost £1,000, the cages and fittings being made in Malta dockyard, and one of the largest of the early steam packets, the *Manchester*, being specially chartered for the voyage. For many years they lived and thrived, until in 1840 one of the males died. Then in 1867 the straw caught fire and a female and fawn were suffocated, the Sun Insurance Company paying £545 as the proportion of their insurance. But births kept up the stock for a time, until in 1892 the last two succumbed. For three years the Gardens were without a giraffe; but in February 1895, in the depth of that hard winter, a telegram arrived from Teneriffe that a giraffe was on board a Cape steamer that would call at Southampton. Mr. Bartlett and his son went down to meet the steamer, and found the giraffe to be a young female in a cage twelve feet high. After much negotiation, principally due to the fact that the owner would not sell the giraffe without four antelopes out of sixteen he had on board, the Society became the possessors of her and a pair of sable antelopes and a pair of black-tailed gnu for £800. The difficulty, however, was to get the giraffe to London. There

were no steamers, the cage was much too high to travel under the railway bridges, and to walk her up with ice and snow on the ground in such winter weather was not to be thought of. At last four feet were taken off the top of the cage, and as the giraffe refused to lie down she was persuaded to stoop, and with her head between her forelegs she was placed on a truck and brought up by the South-Western and delivered safe and sound. She seems to have taken contentedly to her new life, and

arrival, a young gorilla, a healthy-looking specimen whom all hope will thrive. It is not easy to keep gorillas in this climate, but she has all the best part of the year before her, and may live to get rid of the look of amazement in her beautiful eyes.

An even later arrival is a young elephant, which, in fact, came in while we are writing this, and may, perhaps, become as popular as Jumbo. Jumbo's last days at the Gardens were the most successful receptions on record. Unknown to himself, he was



FROM A PHOTOGRAPH.

has been growing at the rate of an inch a month ever since.

A chimpanzee has also put in an appearance of late, and promises to be almost as intelligent as the lamented Sally, though the power of counting straws has not yet been attained, the pleasure of playing with a tin saucer being apparently too much of a novelty to be put aside. Even a tin saucer will probably lose its charm in time, and then we shall see. Next to the chimpanzee is a later

the cause of so much extra money being taken at the gates, that the Society were able to build the new reptile house in which there is now placed another recent arrival—and a most interesting one—a nailless manati from the Amazon, one of those curious inhabitants of the water that have evidently been derived from terrestrial mammals. In these animals, of hind limbs there is no trace, although the pelvis is represented by a pair of splint-like bones, while fossil forms have been found in which



FROM A PHOTOGRAPH.

there is a rudimentary thigh-bone. It is a most curious experience to watch the manati eat a lettuce; the rounded fleshy pads which form the angles of the upper lip opening transversely and seizing the leaf so as to draw it in, much as if the manati were a caterpillar.

Near it are the alligators and crocodiles, so opposite in their temperaments. The big ten feet alligator makes no objection to your stepping on him, neither does his older companion, but if you were to attempt such a liberty with the more lightly armoured crocodiles there would assuredly be trouble.

The snakes around are not inviting, though there are some who say they like them. They seem to have no sense of humour; we should like them better if they had more of a twinkle in their eye. Even when they are fed they take things leisurely until the prey is safe, and then they wake up with a vengeance, and one would think it was a whip instead of a serpent that lashes out and around. Not long ago some experiments were made in this house regarding the sensibility of snakes to music. Some of the black snakes and one of the boas took a little notice of the noise, but the only one which fully answered expectations was the yellow cobra, which stood on its tail and spread its hood and swayed from side to side to the tune of "The Keel Row" as if it were an old acquaintance. We fancy that the early experiences of that cobra would be worth listening to. It is a pity he cannot speak. These musical experiments were carried on in other houses in the Gardens with somewhat dubious results. There seemed, however, to be no doubt that the animals objected to the piccolo, which anything with ears naturally would.

Most people go to the Gardens on a summer afternoon; those who would see them at their best should go in the morning when they are clear of the madding crowd; and certainly a visit should be paid in winter, when many of the mammals are in their best coats, or in early spring, when the birds are in their dress plumage. What a wonderful show the birds make, and how rich they are in their array! How clear and full are the colours! and how well the Britishers, dull as we are accustomed to think them, hold their own! There is no more beautiful bird here than the common magpie. Have you seen the bower-birds build? If not, go and look at the way they are arranging the birch-broom twigs into an arbour and decorating it with scraps of coloured rag and paper that the mice will soon steal away, and the bits of glass and shell. A season or so ago they had a few glass solitaire marbles given them to play with, and these they put in different order in different places every morning so as to get the full value of their decorative effect.

Stroll down by the cranes and watch them give out their noisy cry with their beaks perpendicular, opening and shutting them like a pair of scissors. Give a glance at those old rascals the marabouts, who seem in better repair than usual. Look in at the monkey house and notice how much more interesting are the capers and attitude of its inmates when you have them to yourself. In really cold weather, providing it be bright—for fog

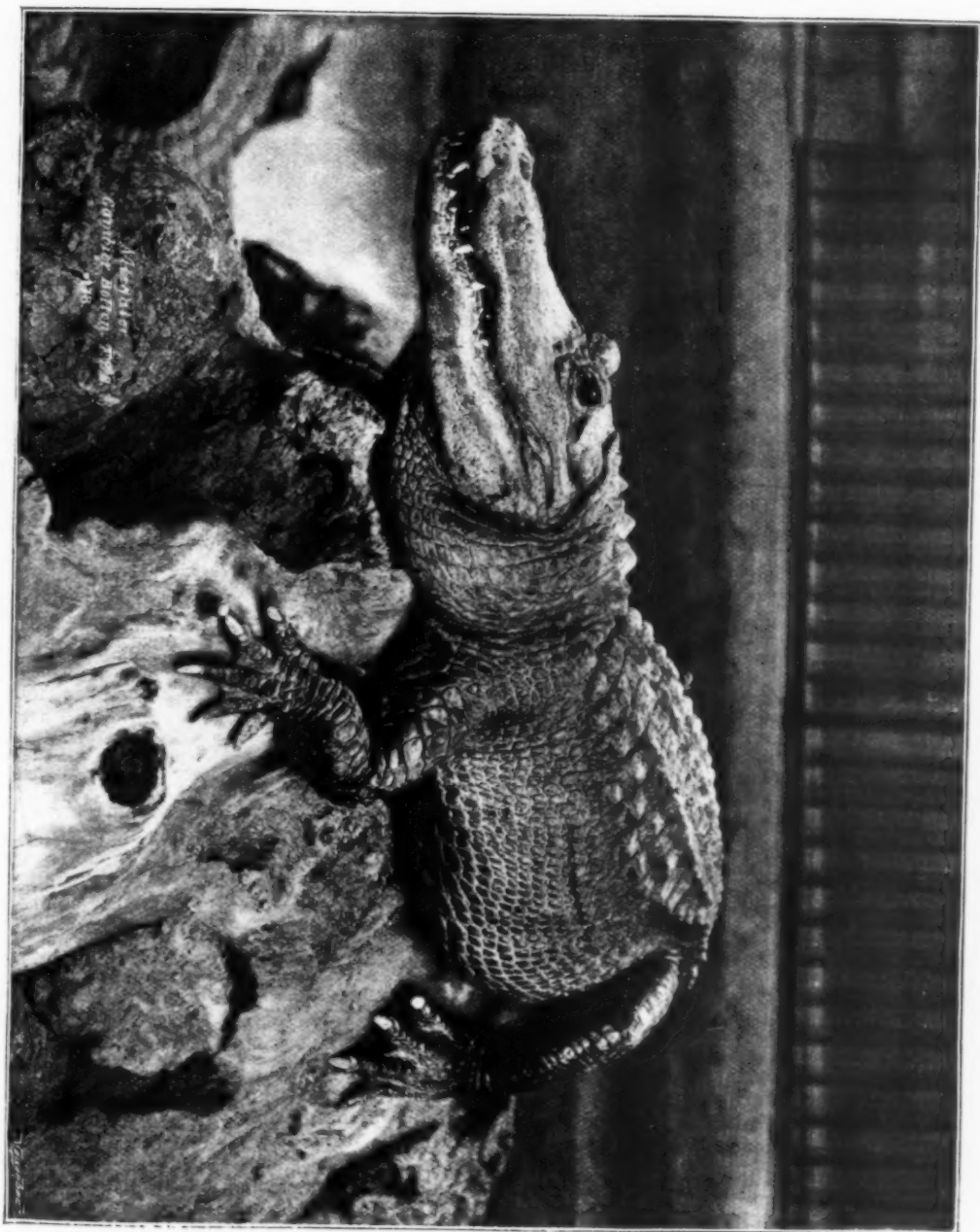
is the monkey's horror and his greatest foe—you will find nearly all of them on the alert. As to the Tcheli monkey outside, he seems to delight in sucking an icicle in the memory of his home among the snowy Chinese hills. Even some of the lemurs, born for the Madagascar night, are peeping out, though so many of them go blind by exposure to the daylight that they are kept in an inner room.

But at all times this house—a vast improvement on the old one—is worth a visit, as are the old carnivores' dens under the terrace, where there is now such a fine series of bears. Here are some eight or nine species, grizzly, and brown, and black and cinnamon, the Syrian, the Himalayan with the white chevron, who is mostly a vegetarian, and the restless Malayan with a chest-streak of any colour from white to tan, who has such a weakness for fruit. A little way off are the camels, more pleasant to read about than to manage or admire. Here, on this April day, comes the Bactrian with a coat like a dilapidated door-mat, lounging along with a giggling servant girl between its humps, doing her best to be cheerful in a time of trouble. She will go home happy; she has ridden a camel like a patriarch of the East, and wonders how any sane person could have put up with such a mount.

None of these animals take to passenger-carrying naturally. They all have to be broken in, as horses are. They have to learn that man is their master and will be obeyed, and by slow degrees they manage to walk, to turn, to halt at his word or sign. The camel does not learn this readily. The elephant does, and his daily training soon becomes unnecessary, and he has his reward in buns and biscuits at the public expense. The best trained animal now in the Gardens is the sea-lion, who seats himself in a Windsor chair. First he was persuaded to go to the central stage for a piece of fish, the next step was to get him to take it from the seat of the chair, and finally to get into the chair and catch the fish as it is thrown to him by the keeper. Another instance of training is afforded by a hornbill, who catches his food on the wing as it is thrown to him by his keeper; another is that of the penguin, who wears a red jacket at meal times.

Through the tunnel near the cassowaries, is an important new-comer in the shape of a young king-penguin who greets you with a "squawk" as he looks up into your face—a quaint little fellow in a brown coat who holds his finny wings back at attention while he looks at you as though he would know you again. When he arrived he was one mass of soft down: if he lives he will reach the glory of a blackish coat and a yellowish-white waistcoat. Up to the present he has settled but one small point on which naturalists differed, and that is he holds his head horizontally instead of pointing it upwards as described by Moseley. At any rate there is much more go in him than in that other oddity the apteryx, who seems to have no wings at all, and would make the fortune of a freak museum. But then the apteryx is naturally depressed at being so very much down in the bird-world.

Close by are the familiar hippos, big and little,



FROM A PHOTOGRAPH

and farther on are a Speke's antelope, the only one in Europe, and a hybrid between it and the pleasant antelope, which is as awkward a fact for the fixity of creation people as the series of oxen derived from three species. Near at hand are the parrots as gorgeous and noisy as ever and more numerous, and away in the new patch over the canal bridge is the insect house, where the lepidopterists congregate to admire the wonderful moths in all their stages of metamorphosis. Back up the hill is the marsupial colony with the sloths' house adjacent, in which are kept the anthropoids until they get more suitable quarters; and at the back of it are the stores, which are perhaps the most interesting place in the Gardens to those who can get behind scenes.

It is here that the provisions are received and distributed. How many pounds of beef and mutton are used every year at the Zoo? The answer is None: for the carnivores are fed on horseflesh and goatflesh. Last year the butcher's bill ran to 200 horses, all of them slaughtered in the Gardens, for they are all brought in alive; and these 200 horses yielded 70 tons of meat. The goats, also brought in alive, most of them from the Islington cattle-market, numbered 197, and weighed out at 819 stone.

Of the thousands who have followed the keepers round at feeding-time, and watched the way in which the animals take their meals—the pelicans on the gobbles with their capacious beaks that seem capable of taking any given quantity, the otters writhing and doubling in their eager chase, the vultures beating their wings and dashing at the lumps of gory flesh, the lions and tigers roaring and growling and purring over the bony joints, the seals slipping about afloat and ashore, and the diving birds with their silvery chain of air-bubbles in pursuit of the frightened gudgeons with a swift gracefulness that even a pike might be proud of—few are aware that the provision bill of this menagerie amounts to over 4,000*l.* a year.

The fodder for the oxen, and sheep, and deer,

and antelopes, and elephants and other herbivores is a serious matter. Last year it included 131 loads of hay and 113 loads of clover, besides 56 hundredweight of oil-cake, and over 630 quarters of bran, oats, maize, wheat, and barley, while the bedding used up over 7,200 trusses of straw. Even the small birds got through 15 quarters of canary, a dozen quarters of hemp, and over three quarters of millet—imagine 244 bushels of bird seed! Almost everything living will at

some period of life take to bread and milk, but few would suppose that a menagerie would in a year consume over 5,500 quatern loaves and over 5,100 quarts of milk, in addition to 24,000 eggs for the monkeys, birds, and lizards, and also the snakes, who are not all content with the miscellaneous crowd of rats and mice and rabbits and frogs that mounts up to thousands.

Then there are the polar bears and fish-eating birds, and otters and seals, who divide amongst them 17 tons of fish, including 11 tons of whiting and a ton of flounders. With this we may group the 1,200 quarts of shrimps and the poulterer's bill for 7,500 fowls' heads. Then there is the fruit for the birds and monkeys — 17,000 oranges, 14,000 bananas, 2,750 pounds of dates and grapes and raisins, 530 pints of nuts and 29 hun-

dredweight of monkey nuts, 140 bushels of apples, and 106 sieves of pears. This is not the whole of the greengrocer's bill by any means, for we have to add to it about 500 dozen cabbages and lettuces, 3,600 bunches of greens, 3,400 bunches of watercress, and nearly 1,200 bunches of carrots; besides this, there are about three tons of potatoes used, and if we add to that the four tons of rice and fifteen tons of biscuit we shall have given enough to show that the bill of fare is unexpectedly long, and that the commissariat requires some management to keep it within its 80*l.* a week. Truly animals must feed cheaply when over 2,500 of them can be kept for a penny each a day.

W. J. GORDON.



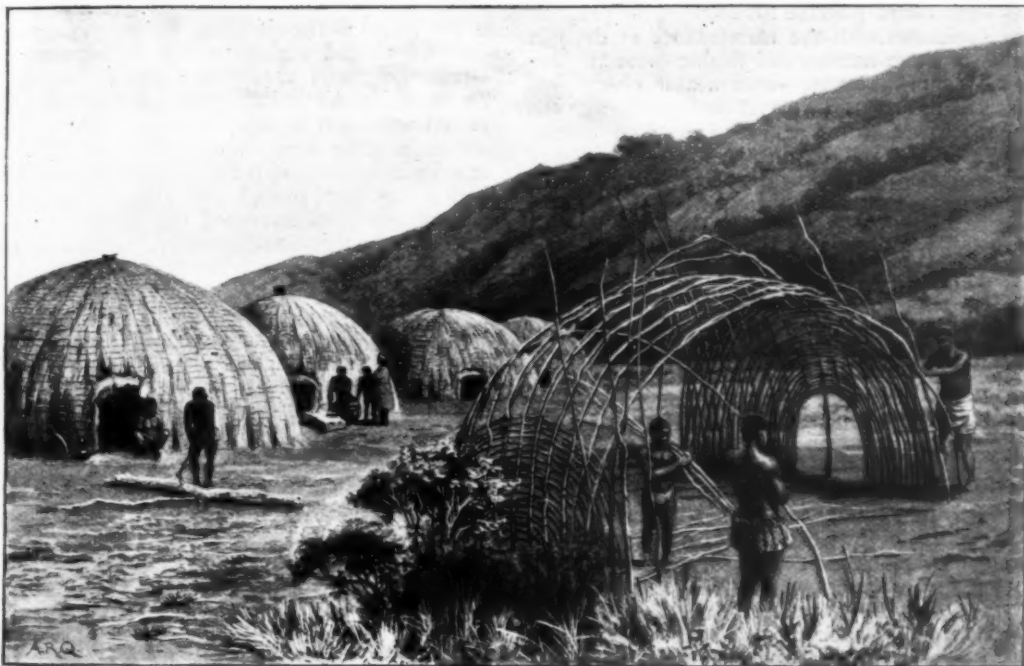
From a Photograph

[By Gambier Bolton, F.Z.S.]

HIS RIVIRENCE.

THE NEW SOUTH AFRICA.

THE NATIVES.



ZULUS BUILDING A KRAAL.

IF we compare South Africa with the other "new worlds" occupied by the Anglo-Saxon race, there is an important difference which forces itself upon our notice at once. Whereas the original inhabitants of North America and Australia have rapidly dwindled before the advance of European civilisation, in South Africa the native races have not diminished, but thriven and increased in numbers. It is quite true that the real aborigines of South Africa, the yellow-skinned Bushmen and Hottentots, have formed no exception to the general rule; but just about the time that the first Europeans appeared in the extreme south-western corner of the continent at Table Bay (1652), a stronger and more prolific coloured race began to force their way down from the northward, and occupied the fertile regions between the Drakensberg Mountains and the Indian Ocean. This race was the dark-skinned people known to ethnologists as part of the Bantu family, but familiar to Englishmen under the names of various branches, such as the Kafirs, Zulus, Matebele, the Bechuanas, Basutos, and Mashonas.

The respective characteristics of the Bushmen, the Hottentots, and the Kafirs (or Bantu) are

well indicated in Pringle's South African poems. The wild life of the first in the desert regions is described in the "Song of the Wild Bushman":

"My yoke is the quivering assagai,
My rein the tough bow-string;
My bridle curb is a slender barb,
Yet it quells the forest king.

"The crested adder honoureth me,
And yields at my command
His poison bag, like the honey bee,
When I seize him on the sand.

"Yea, even the wasting locust swarm,
Which mighty nations dread,
To me nor terror brings nor harm—
For I make of them my bread."

The submissiveness of the Hottentot—

"Mild, melancholy, and sedate, he stands,
Tending another's flock upon the fields,
His fathers' once, where now the white man builds
His home, and issues forth his proud commands"—

is compared with the warlike spirit of the Kafir—

"Lo! when he crouches by the cleugh's dark side,
 Eyeing the farmer's lowing herds afar;
 Impatient watching till the evening star
 Lead forth the twilight dim, that he may glide
 Like panther to the prey. With free born pride
 He scorns the herdsman, nor regards the scar
 Of recent wound, but burnishes for war
 His assagai and targe of buffalo hide."

For practical purposes it is the three million dark-skinned Bantu that constitute the natives of South Africa; and we have to consider to what extent it has been found possible to reconcile the progress of colonisation with the maintenance of the just rights of these natives, and further—and this lies at the root of the matter—what measures have been taken to fit them for a useful partnership with the Europeans. But before we proceed to discuss this, it will be well to gain some general notion of the character of the Bantu, and of the manner in which they are distributed throughout South Africa.

Writers who know most about them, such as Mr. John Mackenzie, the famous missionary, find that a broad line of distinction separates the various Bantu peoples into two groups—the military and the industrial Bantu. The first group comprises the Zulus, the Matebele Zulus, and the various Kafir tribes. Among all of these war was the main employment of the individual, and their tribal organisation and customs were adapted for a mode of life in which war was the chief element. For example, the chief, or king, was an absolute ruler, who consulted but did not necessarily obey his council of lesser chiefs; their "town," the headquarters of the tribe, was constructed in the manner of a fortress, with the king's hut and the cattle pen in the centre, and protected by a circle of huts and a stockade. Moreover, they only planted just so much corn as was needed for immediate use, but depended for food chiefly upon their cattle; and for a supply of cattle they relied upon their prowess, which enabled them to plunder their more peaceable neighbours. On the other hand, among the industrial Bantu—the Bechuanas, the Basutos, and the Mashonas—the power of the chief was not absolute, but was subject to the control of the lesser chiefs, and also, in matters of grave concern, to the decision of all the tribesmen as expressed in the *pitso*, or general assembly. Their "town," too, was open, and unguarded by any stockade, and they permanently cultivated the fields around it. In some cases they even practised crafts, such as the working of metals, and the Mashonas were found to weave a coarse kind of cotton cloth. There is also a difference in the manner of using the common weapon, the *assagai*, or broad-bladed spear. The industrial Bantu throw this spear, but the military tribes use it as a stabbing sword in the hand-to-hand fight. How they use it and the "rush" of the *impi* is described in Pringle's lines:

"Grasp each man short his stabbing spear,
 And when to battle's edge we come,
 Rush on their ranks in full career,
 And to their hearts strike home."

¹ Mokanna's "Gathering."

In a natural state the military Bantu were a desperate and cruel people. On more than one occasion powerful chiefs carried on what was nothing less than a war of extermination against their weaker neighbours. It is estimated that Tshaka, the grandfather of Ketshwayo, caused the death of a million human beings, and devastated thousands of square miles of land, between the years 1812 and 1828.

The distribution of the two groups depends, generally speaking, upon their respective characteristics. The powerful military tribes are to be found in possession of the most fertile country, especially the well-watered regions which lie between the Drakensberg and the Indian Ocean, Swaziland, Zululand, Natal, Pondoland, and the Transkei; and in the north-east of the Transvaal. The weaker industrial tribes were compelled to find homes in less desirable areas, in the mountains of Basutoland and on the high plateau which forms the greater part of the Free State and the Transvaal; and especially in the desert country, northwards and westwards, where we find the Bechuanas.²

Up to the period of the Zulu War (1879) the Europeans, both Dutch and English, were in continual conflict with one or other branch of the military Bantu. First came a long series of wars with the Kafirs on the eastern border of the Cape Colony; then followed the Basuto war, more Kafir wars; and finally, the struggle which crushed Ketshwayo and checked, as many believed, a general rising of the Zulu people. Meanwhile, the Boers—that is, the emigrant farmers who had left the Cape Colony between the years 1835–8—had driven Moselekatsé and the Matebele Zulus beyond the Limpopo in 1838, and subdued the treacherous King of the Zulus, Dingaan, by their victories won in 1838 and 1840. In these conflicts the natives of South Africa showed themselves to be the stoutest and most courageous of all the coloured races against whom the British soldiers have fought, with the exception of the Soudanese Arabs.

The policy which England adopted towards the natives of South Africa was vitally affected by the emigration of the Boers. The constant presence of uncivilised races, in vast numbers, upon the edge of thinly populated settlements—races, moreover, having prior rights—was a peril which inevitably affected the whole structure and tone of colonial life. England acted from the first as the protector of the natives, but she effected her purpose by means which varied in accordance with circumstances. The impartial historian cannot justify every act in the long and confused struggle. At first—that is to say, up to the year 1847—the British Government endeavoured to secure justice to the natives by recognising certain chiefs, such as Moshesh, Chief of the Basutos, and Panda, King of the Zulus, and strengthening them by alliances. This plan, however, failed; for the chiefs were not capable of fulfilling the responsibilities with which they were charged. On the one hand, they were too weak to protect themselves against the Boers; and

² The reader is referred to the map of South Africa which is given at p. 328 of the "Leisure Hour" for March.

on the other, they did not loyally discharge their obligations, and more than once used the strength which they had gained through the alliance with England to attack the English the more effectively. As the result of this experience England adopted a fresh plan. She recognised the independence of the



MASAPHA, SON OF MUSHESH (CHIEF OF THE BASUTOS).

Boers in the Transvaal and the Orange Free State, and took upon herself the direct government of the Kafirs in Kaffraria and Natal, as well as the Cape Colony. But she determined to leave the Boers and the natives outside the British possessions to settle their differences by themselves.

This "non-intervention" policy was pursued, though not quite consistently, up to the year 1870, when diamonds were discovered at Kimberley. These diamond mines were beyond the borders of the Cape Colony, and a new territory, Griqualand West, was added to the British possessions. One result of the development of diamond mining was unfortunate. The natives who were employed in the mines were allowed to purchase fire-arms with part of their wages. As they came from various parts of South Africa, and only stayed a short time to work, a considerable number of guns came into the possession of the natives generally. The possession of these fire-arms created a spirit of confidence, and a consequent desire to revolt, and it was this dangerous movement which culminated in the Zulu war. By this war the supremacy of the Europeans in South Africa was permanently established. But it was not until some years later that European administration was established over the whole of the coloured people.

The event which led England to gradually assume the government of the native tribes not already included in the territories of the British Colonies or the

two Republics, was the attempt on the part of the Transvaal Boers to extend their authority over the Bechuana tribes, in 1884. Apart from the injustice of the proceeding, this region formed the trade route of the interior, and it was desirable, therefore, that it should remain in the possession of England. It was to keep open this "door" that Livingstone had so long contended with the Boers. They resolved to shut up the interior, and "I determined to open the country," he said. The establishment of the British Protectorate over Bechuanaland, which was carried out by Sir Charles Warren's expedition in 1885, was part of a new departure. The principle of this new departure is stated in Article IV. of the Commission which was then issued to Sir Hercules Robinson, the Governor of the Cape Colony and High Commissioner for South Africa :

"And we do hereby require and empower you . . . to take all such measures, and to do all such things in relation to the native tribes in South Africa with which it is expedient that we should have relations, and which are not included within the territory of either of the Republics, or of any foreign power, as are lawful and appear to you to be advisable for maintaining our possessions in peace and safety, and for promoting the peace, order, and good government of the tribes aforesaid, and for preserving friendly relations with them."

The nature of the control exercised over the natives varies with the circumstances of the different tribes. Some of the native peoples, such as the Basutos and the Bechuana, are in the position of a protected state in India ; that is to say, the chiefs govern under the supervision of a British Resident. In others, order is maintained and justice administered by European magistrates, supported by European and native police. In the latter cases the expenses of the administration are partially borne by the hut tax and by the proceeds of licences issued to European traders.

This, then, is the position of the natives at the present time. They are either incorporated into one or other of the Colonies or Republics, or they are placed under the control of European officials under various systems adapted to the circumstances of the different tribes. And so we have to consider, (1) to what degree of citizenship they have been admitted by the European communities, and (2) what are the prospects of introducing civilisation among the tribes which are outside these communities ?

We must first notice that there is a difference between the Dutch and English system. In the Free State and the Transvaal the natives are not admitted to political rights under any circumstances, and only to civil rights within certain limits ; for example, in the Transvaal a native can only acquire real property through European trustees. For it seems to be a fundamental principle of the Boers that no equality can be permitted between white and coloured people. In the British Colonies, of course, there is no distinction of colour in the eyes of the law, but the application of the principle of equality to political rights is limited by certain reasonable restrictions. It is found to be impossible to allow the natives in Natal, who outnumber

the Europeans in the proportion of ten to one, to have the same privileges as they have in the Cape Colony, where there is a comparatively large

In Natal the Tribal Organisation maintained. European population. In Natal, therefore, where the conditions are almost those of India, the tribal organisation of the Kafirs is maintained; the

Governor is by law the paramount chief of all the Kafirs in the Colony, and they are placed under a separate set of laws. These laws are administered by courts presided over by (1) chiefs, (2) European magistrates, and (3) both magistrates and chiefs; and Kafir customs which are not repugnant to the principles of humanity are recognised, in addition to the native laws enacted by the Natal Legislature. The present system, devised in a generous spirit to secure native rights, has its inevitable drawbacks. There are many things not "repugnant to humanity" which are not conducive to progress, and some even which may be oppressive; no provision can be accepted as permanent which does not secure full liberty of development, whatever native custom may prescribe to the contrary. There are also special police regulations in respect of such matters as the "curfew" in the towns, passes, and the registration of fire-arms, which apply only to the natives. In order to acquire the parliamentary franchise, and place himself on an equality with the Europeans, a native in Natal must live for seven years exempt from the control of these laws. When he has thus shown that he is as well-behaved as a European, he can obtain the franchise on the same terms—that is to say, in virtue of one or other of the qualifications which are required in the case of a European voter. These are the receipt of an income of £96, the possession of real property of the value of £50, or the occupation of a house of £10 annual rent.¹

Political Privileges of Natives, Cape Colony.

In the Cape Colony, which now includes the southern portion of Bechuanaland as well as the thickly populated native districts beyond the Kei river, the natives live under the same laws (with few exceptions) as the Europeans. They enjoy the same political privileges, and in order to qualify for the parliamentary vote they must show the same property or other qualifications. These qualifications are very simple, but there are two provisoes, introduced by the Afrikaner party in 1892, which are intended to check the admission of natives. Under the first of these, no property qualification can be based upon tribal or communal ownership, and under the second, no person can be registered as a voter unless he can write his name and address. As, however, these limitations do but tend to make the natives substitute individual for

tribal ownership of land, and learn to read and write, they only prevent the abuse of what must be considered a very generous franchise. Moreover, it must be added that up to the present the Kafirs have not shown themselves at all eager to exercise the privilege of voting for members of the Legislature. Mr. H. G. Elliot, chief magistrate of Tembuland, says in the Cape Blue-book on native affairs: "I do not think any political impression whatever has been produced upon the native population by the return of a member to the House of Assembly. I am confident that not five per cent. know the meaning of it, and not one per cent. care anything about it, and that the balance only wish to be left as they are."

In fact, it is plain that the political privileges which have already been granted are in excess of the capacity of the natives for exercising them. In other words, a great deal more must be done in the way of training and teaching the natives before they can become useful members of the European communities. The education question, therefore, lies at the root of the matter. Moreover, the ideal systems of Europe and America are not necessarily the best for all communities and races.

Missionary Work needs to be supplemented. A great deal has been done by missionary effort in the way both of Christianising and training the South African natives. The work of such men as Robert Moffat, David Livingstone, Mr. John Mackenzie, and Dr. Stewart, the principal of the Lovedale Missionary College, is perfectly familiar to Englishmen. Whatever defects or mistakes may have attached to missionary work in parts of South Africa, the missionaries as a whole have been ever the warm champions of the races they found on the soil. Another noticeable fact is the scale of the Roman Catholic missions, with their conventual settlements and industrial farms. But it is clear, when we consider the enormous masses of natives who have now been placed under the direct control of the Imperial and Colonial Governments, that no mere voluntary agency could command resources sufficient for the task. The Governments must in each case support and supplement the work of the missionaries. Now, it is only in the Cape Colony and Natal that any such support is given: for the Dutch do not believe in the capacity of the natives to benefit by such teaching. In Natal, the native population is so great as compared with the European (45,000 only), that, although a just proportion of the revenue is devoted to native education, as yet no appreciable result has been produced. So that we must look to the Cape Colony if we wish to see the machinery of native education at work. Here almost one-third of the education grant is applied to native schools and missionary colleges, and to trade-schools for adults of both sexes. The result obtained is seen in the fact that, in the eastern provinces especially, educated natives are employed as carriers of letters and telegrams, as clerks, schoolmasters and sewing-mistresses, and nearly all the skilled labourers, such as carpenters, tinsmiths, waggon-makers, shoemakers, printers, etc. are coloured people; so that in these parts of

¹ Natal, as we write, is occupied with the Asiatics and Arabs settled within its borders, now a large body, some of whose traders have attained to wealth. At the opening of the parliamentary session it was announced that a bill would be introduced "excluding from the franchise natives of countries which had not hitherto possessed parliamentary institutions." In the course of debate the Premier said there were three considerations affecting the future government of South Africa. First, there should be no one-man domination; secondly, no one-State domination; and thirdly, no subordination of the destinies of South Africa to the interests and influence of capitalists and speculators. This view leaves the Transvaal difficulty unsolved, but it suggests the direction in which a solution may be sought.

the Colony there is little or no room for European mechanics. But, generally speaking, natives can only be utilised in this way in districts where there is a considerable European population living among them. It now not unfrequently happens that a native trained by European methods can obtain no employment, for the reason that among his own people the arts he has acquired have as yet no place. What is wanted is more education in an African sense towards realising a more natural development under African conditions. The great human needs are of more account than European modes. And it is, so to speak, merely the fringe of the dense dark-skinned masses that is touched even by the combined efforts of the missionaries and the Cape Government.

The case of those great masses of Bantu, living in their own territories, where the only Europeans are the magistrates, the missionaries, and the traders, is quite different. All that can be done at present is to prevent disturbances, to administer justice, and to induce them to be sufficiently industrious and thrifty to supply themselves with food. This last is a matter of great importance. Before the Bantu were organised under European control, two great checks on the increase of population were in frequent operation—war and famine. Since these checks have been removed they have increased, and are increasing, with alarming rapidity. It is estimated that at the present rate of increase the limit of the food supply, provided by the present system of cultivation in the Transkei, will be reached within twenty years. The natives must then starve or fight for fresh territories. It is, therefore, a matter of the greatest concern to the common interests of South Africa that the Bantu should be taught to adopt better methods of cultivating their lands, and generally to practise thrift.

Mr. Cecil Rhodes, who until lately was both Prime Minister and Secretary for Native Affairs in the Cape Colony, applied himself some years since to the solution of this difficult problem. In July 1884 he carried a measure through the Cape Parliament called the Glen Grey Act. It is so called because its provisions were applied first to the native district of Glen Grey and to Fingoland; but it embodies a system of local government which could be eventually applied to the Bantu population throughout South and South Central Africa. Under this Act (1) allotments held by individuals, and descending by the law of entail from father to son, are substituted for locations held on communal tenure, in order to prevent overcrowding upon the land. (2) Very simple village and district councils are established, with a limited power of local taxation. The object of this (which is the kernel of the measure) Mr. Rhodes stated to be as follows. Before the natives were brought under European control "war and councils of war" formed the main occupation of their lives. This occupation has been taken away, but nothing has hitherto been put in its place. By means of these councils, however, the natives will be able to find occupation in matters such as "bridges, roads,

education, and the plantation of trees, and other local questions." For these local matters placed under their own control will naturally excite keener interest than the parliamentary questions, which are too distant and too deep for them to understand. And (3) the idle young males, certified by the magistrate as capable of labour, are made to pay a "labour tax" of 10s. a year, unless they have worked for a European employer either for three consecutive years (in which case they are entirely exempted), or for three months in any single year. The proceeds of this tax are to be applied to establishing industrial schools, and so, in Mr. Rhodes's words, "the neglect of labour will provide a focus for instruction in labour." Moreover, the

Local Option. "liquor pest" is to be removed by a stringent system of local option. Since the passing of this Act its provisions have been applied to three new districts, and it is thought to be a successful method of dealing with an exceedingly difficult problem.

But apart from the natives in the colonies, republics, and territories, there are certain tribes which are still left under the government of their own chiefs. The most interesting and capable of these native rulers is Khama, who visited England in the autumn of last year. From time to time there have been wise and enlightened chiefs among the Bantu, such as Gaika and Moshesh, the old chief of the Basutos. But no chief has approached Khama in respect of moral progress or power of organisation. Before the occupation of Bechuanaland, Khama's people, the Ba-mangwato tribe, were shut up in the valley of the Shoshong river, which they could defend against the Matebele. But after the British protectorate was established, Khama removed his tribe from this confined area, and founded his present capital, Palapye. Khama's claims have been fully recognised by the Colonial Office, and, under the arrangement just concluded, he and his people have been placed outside the administration of the Chartered Company. At the same time, the strip of territory between Khama's country and the Transvaal, through which the new railway to Buluwayo will run, has been placed under the control of the Chartered Company and the newly appointed Deputy-Commissioner for Mashonaland and Matebeleland. This arrangement places a barrier between Khama and the Transvaal border, and at the same time provides that the country through which the railway is being constructed shall be kept under British administration.

Palapye stands in the midst of a fertile district, and the houses are built round a large open square. Mr. Bent, the explorer, has given a delightful description of Khama at home: ¹

"Khama pervades everything in his town. He is always on horseback, visiting the fields, the stores, and the outlying kraals. He has a word for everyone; he calls every woman 'my daughter,' and every man 'my son'; he pats the little children on the head. He is a veritable father of his people. . . . In manner the chief is essentially a gentleman, courteous and dignified."

¹ "Ruined Cities of Mashonaland," p. 26.

Mr. Bent adds that he was (in 1892) sixty years of age, that he conducted services twice on Sunday, and that he had collected £3,000 for a church.

Natives under the Chartered Company. In conclusion, it is necessary to say a word about the position of the natives who are under the control of the Chartered Company. The agreement¹ of May 1894, which regulates the administration of the government of Mashonaland and Matebeleland, contains provisions which secure the rights of the natives. In the first place a Land Commission, on which the Secretary for the Colonies is directly represented, is appointed to settle the boundaries of the native lands, and to arrange that a fair proportion of springs of water, and grazing and arable land, shall be assigned to each tribe or community. As regards government, the company's administrator is empowered to raise a revenue for native administration by the usual method of a 10s. hut tax, and by customs. But the agreement expressly forbids the imposition of

¹ *I.e.* between H.M. Government and the Chartered Company.

any conditions or restrictions upon the natives which do not apply equally to the European settlers, except in respect of "the supply of arms, ammunition, and liquor," or in cases in which the Colonial Secretary himself authorises a special ordinance. As a matter of fact, the "headmen" expressed very general satisfaction at the downfall of Lobengula and his oppressive military system, and the natives generally showed a fair disposition to offer themselves for employment under the Europeans. The average rate of payment, as determined by the simple conditions of life in Central Africa, and the nature of the services rendered, has been, for the Shangaans £1, and for the Mashonas from 10s. to £1, per month. The aspect of affairs has suddenly changed. Whatever the causes of the recent outbreak, and whatever the issue of the painful struggle, it must impose at least a temporary check on the development of the country. All must desire that that development should be resumed not solely in the interest of foreign shareholders, but of the inhabitants themselves, of whatever colour or race.

W. B. W.

SECOND THOUGHTS.

Sympathy. People have a habit of talking about sympathy as if it could be produced at will. We are constantly enjoined to be sympathetic, as if to be so were as easy as rising early or being punctual. Now, sympathy is quite as much a matter of the intellect as of the heart; it implies, first of all, an intelligent apprehension of your neighbour's joy or sorrow. The common woes of humanity are, of course, understood by all; but there are those who have unusual difficulties, and there are, besides, exceptional people by whom even the common trials of life are not felt in quite the ordinary way. If you would console in such cases, it is not enough to have a kind heart; you must also have a clear head; you must, in fact, have intellectual sympathy. The gift bestowed with a touch of self-distrust on the part of the giver takes from a proud nature much of the bitterness of receiving. Still more is this the case in respect to giving advice. To be effective it must be done with great modesty, and modesty is not to be put on like a garment at will. Only a just appreciation of the difficulty of philanthropic work, and of the mental powers required for it, will bring this needed grace.—B. S. G.

Of Pre-sumption. There is the man who presumes on our ignorance, and the man who presumes on his own. Both are odious. The airs of the one, his superiority, his assumption of dignity, the patronising condescension with which he bends to our lower plane, ruffle one's vanity and irritate one's self-love. He is obnoxious to man. But then, the man to whom so much must

be forgiven on the score of his presumed ignorance, he who always falls back on the cowardly "I did not know," he who neglects to inform himself where it is his duty to be informed and then shields himself from the results of his negligence on the plea of ignorance, he tempts God and the devil.—E. E. O.

The Bird Collector.

Can any words be too strong to express the selfishness of the man who deliberately kills a rare bird whenever he gets the chance. A great living picture, a nobly executed work of art, a soul-elevating piece of music, an energising, deeply penetrating thought, beautifully expressed in poetry or prose, may be replaced—yes, and replaced by better if there be any truth in human progress; but a species of birds, one of God's most perfect handiworks, once destroyed is gone from the earth for ever. And then, when it is in the collection, it is no more like the living bird than the poor still, pale body of the dead is like the moving, emotional body of the friend who once walked by our side.—H. B. M. B.

Artist, Amateur.

There is no such thing as a first-rate amateur or a second-rate artist. What is called a first-rate amateur is simply an artist, and what is called a second-rate artist is simply an amateur. The non-professional man is not necessarily an amateur, and the professional man is not necessarily an artist. This is understood, I think, nowhere so little as in England, where the words "artist" and "amateur" have a quite curiously conventional meaning.—E. D'E. K.

FORESTWYK.

BY E. BOYD BAYLY, AUTHOR OF "JONATHAN MERLE," "ZACHARY BROUGH'S VENTURE," "WORKADAY STORIES," ETC.



LANGDALE HAS THE HELP OF CHRIS AS MODEL.

CHAPTER XVII.

BALAUSTION'S Adventure was nothing to Molly's—told at length in successive cantos, and interspersed with pointed applications designed to force up the family customs of Greenway Lodge to a level nearer those of 15 Wicklow Square.

"Joe, you should place a chair for me. The Arrowheads always do for their mother, as much as for visitors."

"Catch me," said Joe, without stirring.

Chris rose laboriously. "Teach me, Molly," he said. "I want to know."

Molly carried on his education with spirit for a day and a half; then the enterprise died a natural death. It was too much plague to be waited on, in the bosom of one's family. Chris

had to practise his manners upon Emma, who was not so quick. It may be observed that Joe thenceforward placed chairs for his mother, although he drew the line there.

Molly was a little shy of beginning to talk of Mr. Storr, but such a character could not be kept out of the piece, and before many days had passed his name was almost as familiar as "the Arrowheads."

"I say, who is this Mr. Storr?" asked Gundry.

"Don't you know, father, Emily Storr is Alcie's great friend that she met at Mount Cray; and this is her brother."

"And a friend of Alcie's too, eh?"

"Of Alcie and—all of us," said Molly.

"Oho! Alick will have to look alive," said Gundry.

His wife looked warnings across the table; he

pulled himself up and tried to look as if he had not said it.

"Alick!" exclaimed Molly, opening her eyes wide.

"Alick will die an old bachelor if he doesn't look out, with having too many strings to his bow," said Gundry, purely by way of escape.

Chris took the first opportunity of escaping from the room. He hoped Mr. Storr would come in and win, if only to serve out Alick for carrying on all round, as if he made too sure of Alcie to be in a hurry. It drove him mad to think of it. It would not be half as hard to see her go to a man she met among her father's own people—like some prince from a native country.

He left the house, and climbed to the entrance of the Silvercombe Woods, where he often went to get away from his fellow-creatures. For the first time, he encountered one of them there. Langdale met him, and with a sudden thought asked if he would sit for the figure of a knight in armour, which he wanted to paint.

"I am doing two pictures for Lord Forestwyk," he said, "and he has made me free of the armoury at Wycombe Priory. Could you come there with me next Saturday?"

Chris was ready: when had he ever not been ready to do anything in the world for Mr. Langdale?

"What is the knight doing?" he asked; and was sorry when he saw the look his words called into the artist's face.

"Riding alone, in a wintry dawn," said Langdale. "It is from an old allegory which I illustrated when a boy. Sir Æneas had thrice to fight a dragon before he might see again his lost lady. And first he conquered. Then he grew careless—lost the habit of warfare, and did not keep his armour bright. And it was all stiff and rusty when a call came that the dragon approached; and he had to go forth in it, with a nerveless arm. The name of the picture is 'Doomed.'"

"Then he died?" asked Chris softly, reading between the lines.

A beautiful light came into Langdale's eyes. "No," he answered. "He was taken, mortally wounded, to a hermit's cell; but after he had lain there long, in grievous pain, a white hind came out of the wood, with a green leaf in her mouth, and laid it at the hermit's feet. It was a leaf of healing. She brought it, morning by morning, till the wound was whole. That is the fellow-picture—'The Healing Leaf.' Would you care to come down and see the study of the hind?"

Chris did care. When they entered the Woodside garden there was Alick helping Alcie to water her flowers, while Mr. Brough sat in the arbour. Chris fell back into his shell at once, and had nothing to say when Langdale showed the hind and lent him the old, treasured little book with the story in it. They went back to the garden and joined the others, who were all in the summer-house by this time. Chris could not help admiring the clever way in which Alick made a comrade of him and kept him a place in the conversation. He was an awful bear not to like this fellow; but

every fresh turn showed more plainly how Alick and Alcie shared each other's lives, and it was hard upon flesh and blood. He felt like an interloper, and soon rose to go.

"Next Saturday, then, by the first train to Wycombe," he said, as he took leave of Langdale.

Alick heard, and at once wanted to know if he could be of service too. Langdale declined, with a private shudder at the idea of having Alick chattering round, through that day's work. For sympathy, intelligence, and silence, Chris was the nearest possible approach to a dumb animal—with the advantage of owning a few powers which dogs have not. Langdale was thankful to have his help and no other.

To Alick, these pictures were a road to fame. The same thought had burned in Langdale's heart when he painted the white hind, and Derwent Storr was near; but he could not associate it with the figure of the doomed knight; that would come too near to making capital out of his own record of shame and anguish. He shrank from that picture, and had been tempted to postpone it, and paint the other first; but when he walked in the wood on Sunday, with the feel of Alcie's kiss upon his hand, he came back to his first resolve: the first work wrought by that hand for public eyes must be the confession of his sin; the story of healing followed after.

It was a heavy task; it weighed on him through the week, and filled his mind, even to the degree of making him less alive to what his daughter might be feeling. Alcie was glad of it. The week was a long suspense to her; she was glad that her father was much at Rundle Street, and would not be at home on Saturday.

Saturday morning broke dark and lowering. All the better for Langdale's task, as long as the rain kept off. Chris came round to call for him and his burdens. Alcie watched them away—Chris a little taller than Langdale, and much broader. She thought of old times with a shudder and a thanksgiving; then resolutely marched upstairs and set to work upon the whole pile of white curtains sent back from the cleaner's in want of a number of those invisible repairs which Mrs. Gundry had taught her how to make. The rents in them were like the cares of life—as fast as she thought they were all done with, for one article, several more came to view. Mrs. Farlie looked in and pitied her, but Alcie was glad of a task which had to be done, and which she could force herself to do. Reading was beyond her; she was like the old gentleman who found that "writers have become very obscure in their way of expressing themselves." It made her ashamed to feel how the charm of new ideas had vanished, now that it was only pain to think of Derwent Storr.

All the week long she had been thinking of him, and trying not to—often with anger, never with the smallest wish to see her future linked with his, but with a yearning that was sometimes almost agony to think well of him again. Her prayer rose like a fountain, unbidden and irrepressible, "Let him do right. Let him do right this time, whatever the right may be."

The midday post brought Emily's letter; and

for the first time for many months there was no message from Derwent. He was mentioned; it was plain that he was at home, and constantly seeing his sister, but he sent no word. For the first time, Alcie realised that he was gone from her—not during her pleasure, but absolutely. He accepted his dismissal—she feared, to his own hurt. She wondered at her own conceit in such a thought, but there it was! He was gentle to her; and she had been as hard on him as he was upon drunkards, and sent him away without mercy, without even the justice of letting him know his offence. Even her fond father blamed her for that; and Derwent was the harder for it already, or he must have found means to tell her that he was sorry for the wound given in ignorance. To re-open the actual subject was, of course, impossible; but when Laurence Oliphant's hero had offended a lady by a speech which could not be referred to again, he spilt champagne upon her gown and apologised for that. Mr. Storr was quite as well able to create a language for any occasion.

"He will grow harder and harder now, and it will be my fault," thought poor Alcie. Derwent's eyes haunted her—those pleading eyes that spoke when he said "Then what is it?" Why had she not found one gentle word to say?

"By just my love I might have saved this man,
And made a nobler poem for the world
Than all I hence shall fail in."

The last line wrote itself in the future tense, in the depression of the hour. It was the vice of her balanced nature, whenever she had taken one side in a disputed course, to hark back to the other, and torment herself with its pleas. She was aware of the weakness, and struggled against it, but still salt bitter tears of self-reproach and longing dropped on the starched curtains, and were hastily dried, for fear of tell-tale marks.

The task was done at last, and with a hankering to be in touch with Mr. Storr again, she took up "The Spanish Gipsy," which he had told her to read, and Emily had lent her, and sat down by the drawing-room window to read. The first few pages were obscurity profound.

A step sounded on the gravel. Alick? Alcie was vexed, not feeling in the mood for him. But a shorter, sturdier form than his, in cricketer flannels, came up to the window.

"Joe! How do you come here at this time of day?" said Alcie.

"It's Saturday."

"How is it you are not playing cricket, or doing something interesting?"

"Because I'm *not*," said Joe, planting himself down for a conversation with her. To heighten the compliment, he sat on the threshold of the French window, with his back to her and his feet stretched out on the broad step outside.

"What are all the rest doing?"

"Molly is playing tennis at the Constables'. Father is taking mother and Emma a drive. Chris, you know."

"Yes."

Joe lay flat back on the floor, leaving his legs

outside, and turned his face to Alcie. "Are you disappointed in Chris?" he asked abruptly.

"N—no. Not that I know of," said Alcie, taken by surprise. "I don't quite remember what I expected of him, Joe. Are you?"

"Awfully."

"Why?"

"There's no spirit in him. He never cares what he does, nor shows fight—knuckles down to the girls like Dash whipped. Molly might put him down on the floor and walk over him; he wouldn't mind, as long as she was pleased."

"Why should you mind, if it pleases him?"

"It doesn't: not worth calling pleased. The only time I've seen him alive since he came back was at the match on Whit-Monday" [Gundry's men had played Constable's]. "You should see his bowling!" exclaimed Joe, with a convulsion which brought him to a tailor's attitude on the floor. "Nobody could keep a wicket against it. He wouldn't go in till the game was well on, or there wouldn't have been any game at all. I played on Constable's side—they let me; and he had me out like smoke."

"Why don't you make him play with you for practice?"

"Ah, why!" said Joe, thumping the floor. "He'll play for the men, not for me. It's just like mother and Emma and all the pious kit. Anything for those below them—the men, the girls—"

"Joe, Joe, Joe!" It was really time to scream at him.

"I don't say it: it's him," said Joe, regardless of grammar. "He treats girls like babies, to be given in to and never hear reason. I say, we're equals—now, tit-for-tat."

"Hear, hear, Joe! But it is tit-for-tat in any case, because if you patronise us like George Herbert's paragon, who made allowance for sick folks and women, we can retaliate like Dolly Winthrop, saying, 'Men would be so!' as if you were a species 'it had pleased heaven to make troublesome.'"

"Like bulls and turkey cocks," said Joe, finishing the quotation.

"But go on," said Alcie. "After Whit-Monday?"

"Why, of course I wanted Chris to go with me to the field on Saturday. Not he. And it's very beastly, when I've bragged of him and he won't show up."

"Did you tell him so?"

"No."

"When will you Gundrys learn the use of your tongues?" said Alcie.

"Never. Not to one another, unless it's in a rise," said Joe. "We should never have known anything about one another if it wasn't for rows; and now we're growing up, and rows are bad form, we never shall at all."

"Couldn't you have a little row with Chris?"

"Did you ever know anyone that could?" asked Joe, with a laugh in his eyes.

"I don't know much about him," said Alcie. "I know he hates strangers. Did you ever ask him to play alone with you?"

"Yes; and he said mother had a skein for him to wind."

"Joe, it is really serious," said Alcie, laying down her knitting. "You must take steps. He must *not* live to wind skeins and do good."

"And work—he works like a horse," said Joe, inspired to find her taking his view of the case. "No wonder father believes in him. And then he comes home to sit and look at mother sewing, or go mooning off by himself. Never lights up, or cares about a mortal thing, except doing good. It's enough to make one bowl to get *that* wicket down."

Alcie laughed. "What if he has left his heart in Australia?" she said.

"He never wants to go back; likes England best."

"Then perhaps somebody broke it for him there."

"Hang hearts," exclaimed Joe energetically. "The worst nuisance I ever came across is a broken heart. I *won't* believe old Chris is another of them—moping and puling after some goose who would be no good if he got her, or she would have had him straight off."

Alcie found something in that speech to give her pause, and Joe continued: "How long do they take to put in repair?"

"Hearts? It depends on what they are made of: if Chris gets a fracture, I expect his will be very hard to mend," said Alcie. "But I was only talking rubbish, Joe. I am afraid the truth is that we have all changed, and he feels strange and lost among us, and we have none of us done as much as we might to help him—except Alick."

"Alick!" exclaimed Joe.

"He always looks out for Chris and tries to make things easy for him."

Joe leaped to his feet, intensely on his mettle. Chris dependent on Alick's good nature for helping him along!

"Did you ask him to come out with you when that skein was done?" said Alcie.

"No."

"Did you ever ask him again?"

"No. It's not long since, you know," said Joe.

Alcie was silent, knowing by experience that to scold him for being huffy only brought him out in self-defence.

"Well, I'll go and see if I can find something interesting," said Joe, shaking himself. He looked delightfully handsome in his white flannels.

"I wish you success," said Alcie, looking up roguishly.

Joe was too much pre-occupied to see her point, and the joke was not worth the price of drawing his attention to herself just then. He walked off, leaving her in a mood wonderfully unlike the one in which he had found her. Joe had been of inestimable use to Alcie. From earliest childhood she had occupied a position of such importance that she could hardly have escaped some trace of the feeling "Sun, moon, and stars at my wink disappear," but for Joe's home truths, and flat refusal to follow her lead about anything unless he saw the sense of it. Gundry believed, and had once unfortunately said

in his family circle, that she could "do anything with Joe." The truth was, Joe would talk to her as he did to no one else, because he knew that she had long given up all expectation of doing anything with him. She influenced him often, but only as windows influence character, by affording fresh outlooks. He returned the good office, and never more to her advantage than on this day. As his footsteps died away upon the path, she felt how absurd it was to think that her influence could have been important to such a man as Derwent Storr, when even Joe was beyond her. Men are unmaliceable things.

She took up her book again, resolved, at any rate, to have nothing to do with the nuisance of a broken heart. This time she was alive, obscurity rolled away; the scenes stood out, they seized, mastered her. The poem tells the story of Fedalma, a beautiful maiden, who had been adopted, when a little foundling child, by a Spanish duchess—her parentage unknown. When the story opens, she is betrothed to Don Silva, the reigning duke. On the eve of their bridal, Silva being absent, Zarca, chieftain of the Zincali (gipsies), reveals, himself as her father, and summons her to aid his escape from captivity to the Spaniards, fly with him, and be the angel of their race, sharing his schemes for raising her people from a wandering tribe into the germ of a mighty nation.

When Zarca came upon the scene, Alcie put on her hat, and escaped to the woods. There, safe from interruption, she tore through the tragedy that follows. Fedalma goes. Silva forsakes his command to go and find her, and makes a wild effort to conquer race by love. Love is not strong enough. In a moment of maddening anguish, he lifts his hand against Zarca. The chieftain falls. The lovers are parted for ever, and the hope of the Zincali slain.

Trembling, throbbing, Alcie traced in that story the clue to her own life. Her eyes were opened; she saw herself, like the Zincala, one of a race despised and outcast.

"So despised,

It is not persecuted, only spurned."

Justly despised; justly condemned, abhorred; guilty of crimes innumerable against the innocent. Ah, is there any race on earth whose hands are so filled with the blood of the poor innocents as are the drunkard's? The wild Zincalo had his own wild strength and keenness—there was a charm about him. There is none in those who wallow under the curse of drink.

But—and Alcie's heart leaped at the thought—not of the lowest of that sad race can it be said that *their* blood is "unmixed as virgin wine-juice." The taint that blackens it and stains the generations yet unborn, comes from an outside thing, and can be transmitted only by force of the life defiled. In the parent through whom it came to her, that life was of a strain so noble, so lovely in itself—could she have chosen, then and there, to be the child of any other, without costing him an hour's loss or pain, she would not have accepted the exchange; the flawed marble was more precious than the finest clay.

Yet her inheritance was an awful one. With a shuddering horror, such as the flawless can hardly conceive, she felt her kinship with the whole bleared, sodden, maddened race—not only from a common humanity, not even for Christ's sake or for love's, but because of a common stain of poison in the blood. There was hardly a doubt that the seeds of the drink crave were in her. This had not troubled her before; only one thing could make them germinate, and she never touched it. Now she saw the matter with the eyes of Derwent Storr. He was no Silva. Never (she was proud to think it) would he have deserted his post for love. His ambition was in a sense a sacred thing to him. It made a poor religion, this worship of power and success—a poor, pale, narrow thing beside the service of the Kingdom which has room for sinners; but while he adhered to it, he was *right* not to put out a hand to clasp again the hand branded with a curse. Thank God, she had withdrawn it herself; he had not had to drop it. Alcie gasped like one who has escaped a precipice, to think what the situation would have been, had she uttered that gentle word unsaid which she had been lamenting. Some angel had saved her in her blindness.

She knew Mr. Storr would be glad, for her sake, that the dismissal had come from her. Oh, he was kind! He would pity her deeply for being—a Zincala! Like her father, Alcie could realise her own case best under a figure; she could *feel* Fedalma stripping off her gems with a last kiss on her betrothal ring, better than she could feel her own heart.

By the passion in those love scenes, too, she felt the difference as well as the likeness in her own story.

"Fedalma dies in leaving Silva."

Alcie had not so loved. It was well. Then came one mortal pang; she had longed to drain life's cup to the bottom—to drink deep, deep of all it had to give. Its best had touched her lips—enough for her to guess the sweetness in it—and was gone, only tasted. She could almost have wished to feel more, suffer more, and know that she had drunk.

She was sitting now in sight of the path which she had climbed with Derwent Storr on that golden, glorious May evening. How young they felt

together in the sunshine that streamed through the young leaves! The woods were gloomy now, their heavy foliage dark under a leaden sky. She sat there alone with the burden of "an aged sorrow," generations old.

A warm ray glanced through the brake, and grew stronger and stronger as the sun came down out of the cloudy curtain and sent his dying beams athwart the wood. The brown trunks glowed red; wild roses gleamed like flakes of light. A few little



ALCIE WATCHED THE MIDSUMMER SUN GO DOWN.

birds discovered that they had gone to bed too early, and roused themselves with a twitter. Alcie hurried up to where the hedge dipped, and leaning on a bar that filled the gap, she watched the midsummer sun go down in the north-west, leaving a rift of fire under the dark pall of cloud. A faint flush lit the grey for a few minutes, then faded; no rosy lights rippled the upper sky. Heavier, darker, hung the clouds, sinking down towards the hills. The rift dwindled to a line, and still Alcie stood there, thinking of Fedalma at the ship's side,

straining her eyes across the sea to the bark where Silva waited and watched, and saw

"The waters widen slowly, till at last
Straining he gazed, and knew not if he gazed,
On aught but blackness overhung by stars."

Poems can end so; real life goes on. Alcie looked on to the lonely, hopeless dreariness of Fedalma's after-days, watching her people lead the same low, childish, thievish life in Africa that they had lived in Spain—her sacrifice, her anguish, bootless. And she thought of her own young life, dragging the chain of bitter heritage. No choice was hers, only a doom. Her leave was not even asked before she came into the world, born to "wed the curse of the Zincali." Mr. Storr escaped something when he missed forming any links with her! She saw the hideous bondage of her kith and kin. This very hour, as she stood by the wild-rose bush and smelt the sweet breath of early hay from the pastures, the Saturday-night orgies were going on, faster and louder hour by hour—the bread and the love which ought to be the children's swallowed up in drink. She stretched out her hand in an agony of longing to help, to stop, to save. What were they worth, those little hands, not strong enough to rule her Sunday-school boys? The monster ill roars on, flesh and devil on its side; the world indifferent, the Church, as a whole, not caring enough to make a stand; and God—what is He doing?

Alcie looked up into the dark sky overhead. There was not a break, not a glimmer, through the thick clouds. The evening breeze sighed by, scattering the rose-leaves. God keeps His hand upon one string; its name is death.

Is that all?

No. He has bound that cord upon Himself to draw the world to Him. The Divine has stooped to suffer under His own laws—once by the law of death—age after age by the mysterious law which leaves men free to choose death rather than life. Jehovah, who could crush rebellion under His feet, stands pleading through the voices of the prophets, under the figure of a man deserted, pleading with a beloved, lawless wife. Words fail to tell of her abominations, and yet the cry goes on, "Return, return." "How can I give thee up?" The Son of God cried "O generation of vipers," yet gathered the vipers to His heart, as many as would come. "This man receiveth sinners."

Ah, even that would not be enough, if that were all. It is easy to be merciful to those who are far enough away from us. Alcie had been very merciful till she had to recognise the common drunkard as her blood relation, and the degradation of her kinship scorched her. He is not ashamed to call them brethren.

"He can afford to," she thought. "He is high enough. And so am I in Him."

Then, with a flash, she saw how the whole scheme of deliverance for Fedalma's race had failed because it hung upon a mortal man, and perished with him. The drunkard's Saviour is alive for evermore.

The shrinking horror that belongs to impotence was gone. Once more the old yearning love and

pity for her sinful race came back, flooding her heart.

The clouds touched the horizon, the twilight deepened towards a starless night. Alcie turned homewards through the dark wood. The darkness of her own young, shadowed life lay before her. She went stepping into it, not lonely, but hand in hand with Him Who came to woo poor sinners for His bride. He has "wed the curse of the Zincali."

CHAPTER XVIII.

THE old rusty suits of armour at the Priory were too stiff and too precious to be worn. Chris was buckled into one of later date, and came clanking out of the dim old armoury, admired of all the men and handmaids who were peeping from their lairs. The family were away. Captain, a fine old bay horse, stood pawing at the door, under an antique saddle harness and trappings most unsuited to his opinions. He had been used in transport service—had something of the step of a charger, and knew the trump of war. Chris made friends with him, and then cautiously flung his weight upon the saddle. Captain threw up his head; but he had carried odd things before, in his transport days, and he brought his mind to it. Chris rode off at a foot's pace, the grey light glancing on grey steel and faded trappings—the rider's mild, unwarlike face looking out through the visor.

"How do you feel?" asked Langdale.

"Rather like Jonah with the whale outside him," said Chris. "But I'm getting used to it," he added, beginning to make sure of the reins, in spite of gauntlets.

He rode about till Langdale had fixed on the right attitude and caught it; then Captain was released. They saddled a bit of low wall, with a stretch of open country for background, and Chris sat like a rock, while Langdale, with fire in every touch, laid in the solid figure with its cold, grey, gleaming lights. Such fire burns fast. Long before Chris had expected, Langdale laid down his brush and said: "Best of models, that will do."

Chris dismounted and came to look. There he was, a splendid figure indeed, resolute, yet with just the touch of despondency in his bearing that the subject wanted. It had come unsought, as he sat there with the story throbbing in his heart. The artist himself could hardly have felt the scene more keenly than did the model. Langdale felt its aspect more—the poem of its gleam and shade; only the painter knows the voice of every light and shade that goes to tell the tale; but the soul of the story can be felt unvoiced, and it filled the soul of Chris.

"It is not finished," he remarked.

"I must finish from the other," said Langdale. "Now for a bite, and then we will see what can be done with that."

A rusty suit was carefully carried to the spot and propped up on the wall, Chris standing by to hold it. Then came hours of work which cut into Langdale's soul like stripes on tender flesh. Every dint, every stain and patch of rust, was the parable

of a fall to him. The sky darkened, the clouds hung lower and lower, while the glory departed from that armour's sheen. Just before sunset, the clouds lifted from the horizon, leaving a band of glowing sky.

"Ah, if I had the horse here now!" exclaimed Langdale.

"I'll get him," said Chris—made the armour safe, and was off to the stables. Langdale ceased painting, and only watched and thought, while a brief glow of crimson light flooded the landscape, and flashed back from the coat of mail. The sun went down; the rift of clear sky burned fiery red; horse's hoofs sounded on the track, and Chris, in full armour, came riding by, Captain treading with reluctant obedience, as though under a presage of approaching harm. He did not like that unaccustomed clank of mail.

Langdale waited till they were in exact position, standing out against the sky—then shut his eyes, and let the sight stamp itself upon the retina and the brain behind it. That gave him the motion, in the low light. Chris and Captain stood for the colouring, and daylight held out till that was given.

"Enough," said Langdale, with a long breath. "Now, prince of models, let us disembarass you from the whale."

The groom was waiting for Captain. Chris was unarmoured in the ghostly armoury, where the steel clanked upon the stone floor, and aged banners hung from the walls. A housekeeper in modern fashions waited without, to say that supper was laid in the dining-room. Langdale accepted gladly. Two decanters stood on the table. He almost shrank as his eye fell on them. Looking away, he met the eyes of Chris fixed upon him. To see the red wine just then was like coming upon a kerchief stained with the marks of a death agony.

Every nerve in him was vibrating, after that day's work at flying speed. To be observed by almost anyone else would have been torture; but the dumb sympathy of Chris did not hurt him—no more than a good dog's. He looked so big and peaceable, eating his supper, like some large domestic animal, minding itself when not wanted, but always on the alert for the lightest call or signal from its master. When they left the house together, Langdale offered him his arm. Chris took it, thrilling at the silent acknowledgment of days when he had held that arm for dear life. He dared to press it, then let it go.

"You must take mine now," he said.

"It is a good prop," said Langdale, giving a pressure in his turn, little guessing how wildly the poor lad's heart leaped at the words. Ah, for the right to be his prop for life!

There was nothing more to be had out of Chris but the shortest monosyllables, all the rest of the way back to Woodside. Langdale began to feel that such a degree of dumbness in the human animal made dull company. Chris carried his load into the study, and Alcie made opportunity to say:

"Chris, do you know that Joe is awfully disappointed that you won't go to the playing-fields with him?"

"Is he?" said Chris, looking astonished. He

stood pondering for a moment, then took his leave, without even having the presence of mind to thank her.

"He is a quiet lad," said Langdale, after seeing him out. "But such a good fellow! To see his patience, holding that old suit of armour!"

He asked what she had been doing all day.

"Mending curtains," said Alcie, and was praised for her industry.

Up in her room lay the pile of mended curtains, and the book read through—all the outward record that remained of this momentous day.

Through the long summer days of the week that followed, Langdale painted early and late, always alone. Even Alcie was forbidden the study. With untold relief, yet untold sorrow, he let free upon the canvas the long locked burden of his past. Often he threw down the brush because he could bear the task no longer; then seized it again, rendering with exquisite faithfulness every shade and form that would make the story plain. The haggard look of former years returned to his face; his eye had a painful glitter; but he was still master of himself, gentle and courteous when interrupted perforce.

On Saturday Alcie heard him stealing downstairs at five o'clock, and rose herself to make coffee for him. When he met her at meals, he hardly spoke, absorbed in thought. In the afternoon he opened his door and called "Alcie."

She came running to him. The picture was hidden. He led her to the right spot, and removed the screen. There lay the story, told—the strong figure, resolute, but with a slight bend forward, and a nervous clutch upon the rein which told of boding fear; the horse stepping warily, with proud yet troubled bearing; the tarnished armour and the dreary light; the wide, lone stretch of barren land, never a sign of living habitation, only, far off, a glimpse of distant yew-trees, that told of a resting-place of the dead. The withered bracken, all beaten down, lay over the border of the track. Not a flower bloomed, not a bird was astir in that hour before the wintry sunrise; the man went lonely to his self-wrought doom.

Alcie stood motionless, letting it sink deep into her before she dared look into her father's face. Then she saw that the painful glitter in his eye was gone. He was very pale, but tranquil, with the look of a man who has come through a great fight unscathed.

"Does it speak?" he asked.

"Yes," said Alcie.

"Enough?"

"Yes, *all*," she answered; and repeated, "*All*."

"I cannot say that," said Langdale; "but—

enough."

He put his arm round her, and clinging together they went nearer, and looked into the beautiful work in detail.

"It wants finishing," said Langdale, seeing a host of touches wanted; but they were only what the punctuation and verbal corrections are to a manuscript when the story is done. "I do not want to touch it again—that is, if I can keep my hands off it—until the other is brought to the same pitch," he added.

"Then come away, father," exclaimed Alcie, "or your hands won't keep off. Let us go and have tea with Mr. Brough."

Alick was always out on Saturdays. Mr. Brough did not know how to make enough of them, and walked back with them to look at the picture while daylight was good. He looked long in silence at it, then into the painter's face.

"You have turned preacher, I see," he said. "This is the Baptist's message, 'Flee from the wrath to come.'"

"And this is His who came after," said Langdale, taking out his study of the white hind.

"Ah, the innocent thing! The healing brought by a creature who knows nothing about the wound!" said Mr. Brough. "How often one sees it! The hand of a little child, or of some man or woman who has never looked into the depths of Satan. Yes, you have the very look—the pity and the ignorance. These pair well, sir," looking from one picture to the other. "What do you call them?"

"This is 'Doomed,'" said Langdale, "and this 'The Healing Leaf,' with this quotation," showing an extract from the allegory which explained the subject.

"Ah, you couldn't put the office of 'the blessed company' into any single type. The hermit does one side of it, the hind another," said Mr. Brough.

"The hermit's is the more costly," said Langdale, with a look at which Mr. Brough gave a grunt.

"You have spoken plain," he said, reverting to the pictures. "I think I see the meaning; and that is more than I can say of most fancy things."

"It is the highest compliment I could receive," said Langdale, "and the most valued."

CHAPTER XIX.

NEITHER Langdale nor Alcie liked the thought of Alick's first sight of that picture; and, after all, it was a relief. To him the whole conception was a splendid work of imagination, which he admired enthusiastically. Langdale was reassured that the heart he had poured into the subject would not be worn upon his sleeve for either doves or daws to peck at.

That week's work left Langdale exhausted. For a day or two he was quite ill, unable to go into the study, and it devolved on Alcie to show the picture to Chris. He stood stock still and silent, devouring it with his eyes. Since the end of that day at the Priory, he had had a tornado to weather. The smothered passion leaped up and mastered him—there was no life, no taste in anything in the world besides. Those few words from Alcie had brought her so near—it was frightful to be so far; seeing her, hearing her name continually, yet nothing to her! The figure of the doomed knight was too much like himself, only he was farther on in the story: there were hours when the dragon had him by the throat. If Alcie knew what was in him at this very moment! He stood there, the image of all things stolid, the elements raging in his heart.

Alcie grew tired of waiting for a comment, and said at last, "Do you like it?"

"No," said Chris, turning his face to hers. The tone, his look of suffering, revealed that he felt it too much—for her father's sake, she thought. With a quick, involuntary impulse she held out her hand. Chris barely took it, turned his back, and strode out of the house. He felt too bad a sham to stop there.

Alcie stood where he left her, hot and astonished. What did he mean by walking off as though she had taken a liberty? Then she remembered that it was good old stupid Chris, who could not possibly mean any harm; it was all his clumsiness. Still, this was the second time that she had met with a rebuff from him; he should not have a third opportunity.

Chris walked off, all his big frame thrilling with the sense of her touch upon his palm. She trusted him, whatever he was; she owned the bond that the old times made between them. How that helped him, now that he had time to take it in! The spell that had tortured, half-maddened him, and mocked his struggles, snapped under her innocent hand. The first tears he had shed through this long battle stood on his cheeks; he began to see victory ahead—not by loving less, by loving better, more nobly, with less thought of self. *She* thought of him, and kindly—he could afford to forget himself.

He became conscious of a tear and brushed it away, just before Joe came round a bend in the lane. What an escape!

"Hallo, Joey, where are you bound?" he asked.

"Anywhere," said Joe, brightening at the cheerful tone. Chris had looked so desperately glum these ten days, that he had not ventured to make proposals of any sort.

"Will you come down the orchard and let me send you some balls?" said Chris.

Joe lit up. They pitched their wickets on the level at the foot of the orchard, and played till dark. It was like old times to Joe to have old Chris making him try over and over again till he could do what he wanted. Gundry came down to look on, and went in himself, while his sons took turns to field; and they all came up to supper in spirits which were quite a relief to the family. Two such lumps of depression as Chris and Emma had been a heavy incubus at meals.

"I say, come to the field with me to-morrow, will you?" said Joe awkwardly, as they went up to bed.

"All right," said Chris, though he hated it. He had had an unfortunate experience of young gentlemen on board ship, and did not wish to put himself in the way of being snubbed by any more of them, especially before Joe.

Joe belonged to the Friar's Combe club, which hitherto had not stood high, but was now being vigorously worked up by the enthusiastic captain of its eleven. Once a year, the All Forestwyk team, drawn from the three chief clubs of the town, played All Ainsport. Monthurst, its captain, was a son of the architect whom Joe was with, and captain of the best eleven in Old Forest, which ranked first in the town, both for play and social standing. Hilly Forestwyk was at a disadvantage

in the national game, having scarcely any natural levels except on the hot flats beside the river. Ainsport had won so many times in succession that there had even been talk of giving up the annual match. This year it was the turn for it to come off at Forestwyk. The old city's team had been strengthened by the entrance of Ardwick, the captain of Friar's Combe, and a new master in the College club, and great hopes were entertained that the turn of the tide might come.

Chris and Joe found the nets up on the Friar's Combe pitch, and members at practice. Chris took a turn, and, rather to Joe's disgust, sent a young hand easy balls, without a hint that he was doing it on purpose, till just as the ten minutes were up, when he gave him a fast leg-break that was in his wicket before he knew that he had missed.

"Do it again," exclaimed the voice of Ardwick, who had come up unnoticed. "Is this your brother, Joe?" shaking hands with Chris. "That was a twist of your own. I wish you would let me see it again."

"Let me see yours first," said Chris. They took a turn together, and Chris spotted the difference in Ardwick's delivery, and made him try again, as though he had been Joe in the orchard.

"It will come of itself directly, and then you won't know how you ever *didn't* do it," he said. "Now let me bowl to you."

Onlookers gathered round, and cried "Go on" when the time was up; the object-lesson was worth more than practice.

"Where did you get your game?" asked Ardwick.

"W. G." said Chris, seizing all ears. "I never saw him," he explained, "but there was a man at Wallaboo who played the English team when Grace was over in the seventies, and saw a great deal of his play, and he used to show us how he did it."

He went on again, Ardwick desisting and sending him the young hands. More watchers gathered round. Monthurst sauntered across the field and saw the last turn, when Chris played with Ardwick, and both were on their mettle. They went on till the bells began playing their hymn, and it was a rush to draw the stumps and be off before the gates closed at nine.

"Bring him again, Joe," said Ardwick. "I wish I could ask you to join the club," looking at Chris, "but we are such a poor set."

"You have good stuff to work on," said Chris; on which Ardwick jumped at him, and Chris was very willing to join the fellows who made him feel at home. This evening's play had done him all the good in the world.

When young Monthurst came through the office next morning, he stopped to chat with Joe, and told him to be sure to bring his sister and brother to see the match between Old Forest and the College on Saturday afternoon.

"I see your little game," thought Joe, chuckling to think that Chris was booked already for Friar's Combe, where he belonged. Was he not born and bred on that unfashionable side of the town?

Molly was happy to attend the match, and her father said he would go too.

Joe was late in starting on Saturday afternoon; the others had gone on before. He took a short cut by slanting across the Leas, and nearly ran over Dyke, who was standing irresolute at a corner.

"Hallo, Dyke! Are you coming to see the match?" he asked.

"I wasn't, sir," said Dyke doubtfully; "but if you are to play—"

"Not I," said Joe, "but young Mr. Constable is in Old Forest. Come along. Make Maria wash up little Jack, and bring him too."

"She would be afraid of the balls, sir, for him."

"I'll come round with you, and tell her that's all hum."

Dyke did not like to refuse, though he shook in his shoes. Maria had all her cleaning-up to do on Saturdays, and her own washing too, sometimes. To his great relief, she sat in the doorway, neat and trim, her pretty brown hair like silk, and her aged gown concealed by a spotless apron. Hope had dragged the poor thing out of her bed at six o'clock, after she had stood at the ironing-table till eleven overnight. She had scrubbed her floor and tidied the few things she had. There had been some returns from the pawnshop, and the place looked habitable again. But the mistress was tired to a degree. She had put off the chief meal of the day till her husband should come home—even her cup of tea was delayed for him; and now he was late, and the old sick dread was stealing over her that he had dropped in somewhere, and would come shouting home at night with his pockets half-emptied, the old bad times all beginning again. What was the use of slaving and trying? Despair and exhaustion were seizing her in a horrible temptation to seek the one thing that made life seem tolerable, when up came Dyke, fresh from work, and Master Joe, the beauty he was in his cricketer suit! Maria started up, rewarded at a stroke for her nine hours' toil, and for dressing herself after it. She promised to send Jack, though she had nothing that she liked to put on him for such an occasion. Joe ran off, and she and Dyke sat down to a hasty tea, with revived interest in getting things out of pawn, if such prospects of display were before them.

The College won. Monthurst was bitterly vexed. His sister found out Molly when the match was over, and wanted to know if her "wonderful brother" was there.

"Do you mean Chris?" said Molly, surprised. "He was here this minute."

She looked round, and saw him talking over the barrier to Laurence Ryan and another man, with a horrid little shabby boy on his shoulder. Molly would not own to the sight. Miss Monthurst said several pretty things, talked amiably to Gundry, and passed on.

Ardwick introduced Chris to the College master, who asked him to come up to the College field on Monday. "All Forestwyk" was practising desperately; the Ainsport match was to come off on the following Saturday, and the play of Old Forest in this test match had not fulfilled expectations.

On Friday night the master played with Chris in the field. There were but two Friar's Combe

men in the Forestwyk eleven—Ardwick, and a man named Bartram. Bartram went across to Monthurst and proposed to stand down if Gundry would take his place, Chris having been duly elected by this time. Bartram was not the weakest member of the team, but he was the most candid. Monthurst was sorry to be equally candid in return, but there was no help for it; he walked back with him, and laid the proposal before Chris.

"I never played a public match in my life," said Chris. "I have never even seen first-class cricket."

"Don't be satirical," said Monthurst. "Poor Forestwyk!"

Chris was convinced that he should "make a mull of it," but was overruled, and consented.

"I haven't the proper togs," he said to Ardwick, privately. "And I can never get things ready made."

"You are an out-size," said Ardwick, laughing. "Never mind; it is your score we want."

It would be hard to say whether Joe or his father was the more excited on the occasion.

When Chris reached the tent a little before two o'clock next day, the first man he saw was Ardwick, dressed like himself in light grey; the next was Bartram, in flannels, bat in hand.

"It's all right," exclaimed Bartram.

"Or all wrong," said Ardwick. "The master got a bad hit on the ankle this morning, and won't be able to run for several days. Where should we be now without you?"

The Ainsport men won the toss, and All Forestwyk soon saw that it had its work to do. The score mounted up and up. Monthurst naturally tried his best bowlers in Old Forest first, and then the College men. Three of the enemy were dismissed in course of time; the fourth and fifth looked as if they had come to stay till seven o'clock, and there were six good men and true behind them. The quarters chimed; the fields lay like a baking-pan under the hot July sun. Monthurst saw the spirit of his men begin to give; very few men can play a losing game. He put on Chris and Ardwick together. Ardwick's third ball disposed of the champion, amid a hurricane of applause. The spectators loyally cheered the enemy for merit, but they roared for their own men.

"That was your twist," said Ardwick to Chris, as they passed.

Chris soon sent out two men who followed; the one left in fell to Ardwick's bowling. The remaining three were got rid of for 18 runs. Ainsport went out with a score of 114. But time had been scoring too. As the Forestwyk men went in, the sound of the Easter Hymn booming over the river told that it wanted only five minutes to five.

Ardwick and a College man went in together. The College man was stumped without a run; the enemy's bowling was prodigious, to Forestwyk eyes. Ardwick held his own for some time, during which three more men were sent out—then was dismissed by a brilliant catch. Harry Constable was left in, a smart hand, but nervous and uncertain. Monthurst went in himself, and told Chris to follow next. He was a splendid batsman. The

crowd began to breathe; their team might show a good fight, if it could not win. Chris watched young Constable, expecting every moment to see him bowled out, and have to go in himself. Something turned over within him to think of it!

A hit from the captain that set the whole field clapping—the white runners flashed past. Right up from the long field the ball came back to Monthurst's wicket—he was run out.

Dead silence; a groan; then a loyal murmur of applause for the splendid throw. But alas for the hopes of Forestwyk!

"You," said Monthurst to Chris. Chris said to himself "Never say die," and went in. Bolder men than he have owned to feeling their nerve falter at their first innings in public; but the case was desperate; that hardened him. It took him a few minutes to get set; then he knew that he had the mastery. On, on, went the score, Chris getting most of the batting. It seemed such easy work to him on this green velvet pitch, after being used to the scrubby white grass with red earth showing through it, at Wallaboo. Harry Constable took heart and did well; so did the next man when Harry was sent out. At a quarter to seven there was a wild cheer—Forestwyk's total had gone past Ainsport. A few minutes later, the man opposite was bowled out and his score put up, and there was a shout of "Gundry, 90."

Chris had not kept count for himself so far; he did now. He had reached 98 when, rolling through the breathless silence, came the first stroke of St. Abbot's chiming the four quarters before seven.

The next ball came, and went. In the midst of the running, a cheer from every throat in the crowd, drowning the bells, told that he had his century—his first. He made four runs. If the clock had done striking, nobody knew it. The enemy sent one more ball. Amid deafening cheers, Chris carried out his bat for 105 runs—and Joe was in the shout! Forestwyk won by 26 runs, with two wickets left to fall.

Then the crowd went mad—roared, shouted, jumped about, as though the respectable citizens, ladies and all, were schoolboys gone demented. Mr. Constable waved his straw hat so that he broke the brim, and pounded Gundry on the back. The enemy came bounding over, taking their beating like jolly Englishmen, proud of "foemen worthy of their wood." Chris stood wiping his brow, with his back against the tent-pole, took it all with his quiet smile, and observed that it was "rather hot." The two teams were to dine with Mr. Monthurst, the captain's father. He came to hurry them off, and wrung the hand of Chris as if he had done some great national service. Chris liked it all very well, but would have been happier if he had known what to say.

Fresh shouting set up as the cricketers went to their break. "Hurrah for Gundry! Hooray!" Chris caught sight of a knot of his own men, Laurence with them, and waved his cap to them.

"Hurrah!" they shouted. If there were men alive who felt tall that evening, they were Gundry's workmen. They only wished that the firm was Gundry & Son, and hoped it would be, soon.

CHAPTER XX.

MR. BROUGH and Alcie were riding slowly along the back of Hartsdown, overlooking the wooded hills and valleys that stretched on to the Irish Sea. Langdale had been persuaded to spend a week at Walnut Farm, away from his studio; and while All Forestwyk was winning on the Saturday afternoon, Mr. Brough and Alick came up on horseback, and beguiled him and Alcie away for a long ride. The two decorators had gone round to visit an old church famous for carvings, while Mr. Brough and Alcie rode back to the Down and waited there, enjoying the fine air and the springy turf. The sun was low; the cool of the evening had come, after the hot day.

Alcie was mounted on Miss Rohan's pony—Mr. Brough on his new horse "Chestnut," a beautiful creature, evidently a great delight to his master.

"Steady, steady. We're not going home yet," said Mr. Brough as they turned for another patrol. "They are very like humans, these creatures. If you want a good horse to wear, you have always to hold him in when he first starts on his journey, and when he turns his head homewards."

"Is that human?" said Alcie.

"If you read the lives of men who have done great things, you will find that almost every one of them had some strong curb upon him in his youth. The hand of the Almighty held him in."

Alcie rode some way in silence before she said abruptly, "Mr. Brough, I do want to know whether it is that or my own laziness that holds me in."

The soft fetters of her silken life had been fretting her sore, this fortnight.

"You have enough to do—all the world to one," said Mr. Brough.

"It is not enough," said Alcie. "Not enough to do," she added; but the first words were truth. She had learned that child and parent cannot wholly answer to one another in every point, if their natures are whole: they start too far apart in the race. The bond comes nearest to completeness when they are comrades in the same work—and the hope of this was gone from her. That week of vicarious passion—her own life simply merged in her father's, while he painted his heart out—had left a profound mark on her; she saw what his art could be, and that her own passion *was* vicarious, as far as the painting went. He could fling his whole soul into the canvas. She was left outside, to find another outlet for herself; he did not need the whole of her.

Mr. Brough glanced at her, and then looked away at the landscape with a satisfied little smile which Alcie did not see. "Don't hurry," he said. "When Providence turns you out to grass, prance away; that will make better hoofs than hanging your head over the gate and whinnying to get into the shafts before your little feet are ready for the hard high-road. I have been on it these five-and-forty years, and I wish He would let me run home."

"Oh, not yet—not yet!" exclaimed Alcie.

"There is so much still for you to do."

"There may be. I have not 'lost the dream of Doing,' but I have, quite, 'the other dream of Done.' I have lived to see that when you shut the

enemy out of the door, he gets in at the window. It's a long watch—a long fight to fight alone; and sitting at a lonely hearth, one looks on to the time when 'none shall want her mate.'"

"Where does it say that?" asked Alcie eagerly.

"Nowhere, in that connection; it is a prophecy of perfect power—for vengeance. But when I see the law of a double life running through all creation and beyond it—from the bits of flowers we are riding over, up to Christ and His Church—then I think that for the perfect powers of the world to come, we must each find a mate—whether it be man, woman, or angel; in Christ Jesus there is neither male nor female. Man turns to woman; but all the women I have most loved here will be mated there."

"All your sisters?" said Alcie.

"And one other—who is not the mate for me, either," said Mr. Brough, with a curious little smile. "Would you ever have believed, Missy, that the old bachelor had done it, once upon a time?"

"I wondered, sometimes," said Alcie demurely.

"So it was," said Mr. Brough. "I was in a hurry. I wouldn't bide the Almighty's time, and thought I would take the best thing I could pick up for myself; and in mercy, I was not allowed to make manacles for my hands of that which was meant to be a gold chain about the neck—and is now, I believe—for another. Which means, being interpreted, that I made a wrong choice; and she had sense enough to find it out, and so—I made my bow. And by the time I got over that, it seemed to me that the Lord wanted an old bachelor just where I was, and there I stuck."

"I don't regret it," he went on, after a pause. "I wish for nothing different now, in this world. But sometimes, when I have seen what your father looks for in the world to come, it has come over me to envy him that."

Alcie rode close up to him, with eyes full of wistful, eager love. Mr. Brough bent from his higher steed and patted her shoulder.

"I've kept your love-letter," he said—"the little one you tucked under my door."

"I said I would always love you better than anyone but father," said Alcie.

"I won't hold you to that," said Mr. Brough. "If you have stuck to it these eight years, you have done pretty well."

"I have," said Alcie.

"Good! Go on another couple of years, and you will have had enough of it. Yes, you will see it as you grow older—he who is never first is seldom second. I have learned, in whatsoever place I stand towards my friends, therewith to be content; and take 'em all round, I have had a wealthy place. The only thing I have to complain of is that my life has been much too comfortable. I have shirked a good many trials with a good many blessings—and had one blessing sent to my old age," said Mr. Brough, turning his horse's head. "Where is that rascal taking your father all this time, I wonder? Let's get out into the road, and go and meet them."

They were not far off. The lane was narrow. Alick rode forward with Alcie, and she heard him talk, thinking all the while of Mr. Brough, at his lonely hearth, passing on the lost dream of earth

into his dreams of heaven. He was a living proof that a counterpart, in the matrimonial sense, is not necessary to the fulfilment of a splendid life down here; but it was very touching to find out that he had longings deep enough even to make him think of putting up with a stranger in the world to come, rather than go on alone; more touching still to see how much rather he would have a well-known face. Alcie wondered whether his little Missy would suit him, when they would both be young together with immortal youth. His confidence made her feel nearer to him than ever. There was comfort in finding that even a person of his strength of mind took some time to get over the discovery of such a mistake. He had a hollow chamber left, when love's young dream was gone. Her heart softened and glowed with longing to be more, do more, for him, to make amends for his long loneliness.

"Here we are," said Alick, jumping down to open the gate of Walnut Farm. But it was Langdale who took her from her horse.

When Alick came into the old parlour, after taking the horses to their stables, he found Mr. Brough standing before Langdale's picture of the rescued horses coming up out of the flood.

"You never get tired of that, uncle," he said.

"Never," said Mr. Brough. "And I've had it eight years—since the day they went away; and how I missed her little feet!"

He turned sharp round, and faced his nephew. The colour leaped into the young man's face. Mr. Brough had not done it on purpose, but he turned away, chuckling in his sleeve. It was the dream of his old age to have those little feet about the house again. He had wondered sometimes how it was that Alick took no steps towards it. It would be a strange perversion of taste if he did not wish it.

"How should I know what they are up to?" he thought now, and laughed in his heart again.

Alick had been conscious of the heat in his own face, and at supper he was conscious that Mr. Brough was nursing some agreeable thought which caused him to smile to himself, and grunt amain, and look benign and mischievous by turns. Alick came as near to being provoked as his sweet temper allowed; then, true to his sunny nature, he began to see a bright side to the proceedings. Something pleasant might have come out while his uncle and Alcie were alone together: possibly something which disposed of Jack Arrowhead, the only rival visible to his eyes. How pleased the dear old man looked! Alick capered off to his room that night with a delectable sense of being on the high road to fulfil his destiny, to general satisfaction.

Long before No. 2 became his home, he had guessed that uncle Zach would like to see his little Missy come into the family; but she was too nearly there already for Alick to dream about her. He cut her pencils, and heard her say her verbs,

and thought her a nice little girl; and she mended his gloves, and ran his errands (under protest from him) when he was in a hurry. As years went on, everything that drew them together also heightened the barrier of intimacy which shut out romance; and when Alcie began to nurse his mother, and Alick's heart went out to her in a rush of affectionate gratitude, he set his foot down that no further thought must be admitted, as long as she came about the house to serve. Being given such inches, he was not to seek an ell.

Through the long months of love and sorrow shared, nothing occurred to make his resolution falter; and when the long watch was over, he saw, and fully appreciated, Langdale's anxiety to give no excuse for commonplace gossip to rub the bloom off the beautiful service rendered, and the mutual affection that grew out of it. The first point of honour was to honour Alcie "before the people" at whatever distance her father chose to fix. Life was all before him then, and he went in for enjoying it—became the most popular young man in a large, pleasant circle, and had young lady friends by the dozen. Little by little he found himself turning back from them all to Alcie. The reasons for keeping at a distance wore away by lapse of time; the barrier of intimacy still remained, but imperceptibly the latent thought became established in his mind that they two were meant to be each other's fate some day—how and when he did not exactly see; Providence would have to do something towards it before he could venture to take any steps himself. It must be the right thing; it would delight the heart of uncle Zach, and give Langdale the very best son that the best of good will could make; it was part of Alick's affectionate nature that all his castles in the air held suites of apartments for the old folks. Failure could not enter into his calculations. He hardly knew what it was, because he had a very quick sense of what he could not do, and never attempted it. This plan entirely commended itself to his good sense—in its proper time. The old affection grew and deepened, but still without a spark of passion in it, until that evening when he went to Woodside, a little anxious on account of Jack Arrowhead, and saw Alcie with the new light on her face, the new budding grace of woman's royalty in her bearing. The schoolgirl and the French verbs lost their connection with her in that moment. But still the old ways went on unchanged; it would have taken a Herculean effort to alter them. Believing that the stars were on his side, Alick left them to fight for him in their courses. Alcie remained undisturbed in the expectation that some day she would have the pleasure of being his confidante about something really serious between himself and one out of the baker's dozen of damsels he particularly admired.

OVER THE HOG'S BACK.



From a photograph]

THE "KING AND QUEEN" OF THE BOULDRE WOOD.

[by J. G. Shurt.

IT was wintry and yet the roads were tempting. One afternoon I left the "little village" of London for a spin. Over Wimbledon Common, through Kingston, Esher, Ripley, Cobham, to Guildford. How exhilarating! Really the roads are smoother and more pleasant than in summer. Bright sunshine but no heat; no dust. And the wind—ah, what a blessing! at one's back. The cycle bowls along at a buoyant pace. Talk about dancing, this is the "poetry of motion."

I must jump off and peep at the hospital half-way down the steep hill. A certain number of men and women are lodged here. What a cosy old hall for them to gather in, and what a view from the back! The chapel, too, with its glass window of perhaps four hundred years, how quaint! This alone to see were worth the journey to Guildford.

But I must go up that steep hill to Farnham. There is an easy way round the side of the hill, but I want to go over what is called "The Hog's Back." It really deserves its name from its shape.

A woman at the foot of the hill said, "No, you cannot get a bicycle up there. I never saw any one cycle that way. Better go round. Nothing

but ruts on the top." I went up, however, but not all the way on the cycle. The ruts were there, but I kept out of them. Along under the shelter of a hedge the sward was level enough to ride. A horseman canters by my side and points out various spots of interest. "There is Chilworth; there in the distance is Black Down where Tennyson's house stands. St. Martha's Chapel is on the top of yonder hill." I look at the latter, wondering where people would be found to climb to service there. It is a landmark, and probably built as a chantry for the pilgrims. It is supposed to have been erected "on the graves of some Christians who suffered on this spot." Certainly, standing in that isolated position, it is a striking object for miles round.

But I am pressing along a pilgrim path. In Dean Stanley's "Memorials of Canterbury," in a note, it is said that foreign visitors "would probably take the most secure and direct line of communication towards Farnham, and thence in the direction of Alton and Hoyle."

The pilgrim path probably ran right along the Hog's Back, past St. Martha's Chapel, to the shrine of Thomas à Becket. Here and there old yew-trees still indicate the pathway. The sun is

sinking into mist, but the colours on this wintry day gladden one's eyes. Darkening clumps of trees, deeply brown; whitish lines of chalk; berry-tipped hedges; distant ranges of hills in softly pencilled outline, and nestling homesteads, leave a pleasant picture in the mind. Ah, but my companion on horseback is saying, somewhat suddenly, "Good-bye." A graceful form is lingering at a gateway, and a light is in the eyes of my companion that give a hint of the old old story that has made the world often a paradise.

What an easy run to Farnham! Here I rest for the night. Just a peep at the Castle, the residence of the Bishop of Winchester. The place was being overhauled, but I was taken through it. Of course one was greatly interested in the most picturesque Keep; in the small room that Bishop Moberly always preferred to the great state apartments; in the cells for offenders against ecclesiastical law, and above all in the wondrous views obtained over the pretty little town and the country beyond. In this palace-castle, said my guide, "there is probably an acre of roofing, and about three hundred miles of carpet."

"Three hundred miles?" wonderingly.

"I beg pardon, *three* miles, sir."

But that is an enormous amount. Good for a furnishing firm to get the contract to re-carpet.

I made a mistake, and had to recover my track to Winchester by going about two miles through one of the steepest lanes. Where tall hedges did not shut me in, extensive woods lined the

smooth roadway, and then over the newly laid flints that with their broken and sharp pieces threaten punctures to the tyres and therefore delay to the traveller. Better dismount. But once in the Winchester highway, how invigorating the sweep up-hill and down-hill. Still, I was glad that through my blunder I had a wander through one of the best bits in that district.

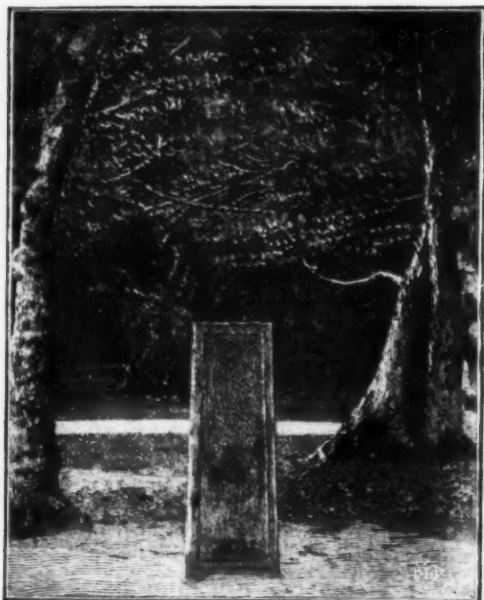
A man in a hop-field is examining what seems to be the body of some wild animal. He holds it up to his fellow. "It is a bit of bear's skin that had been swept into the rubbish hole," said Hodge. "Queer things we gets down here sometimes from Lunnon, sur."

Along a flat, between rich meadows well irrigated by streams and ponds full of fish and cress, it is an easy run to Winchester. I pull up close to the Westgate. A friend of years ago happens to be at hand. He volunteers to give me another glimpse of the old Hall, where former Parliaments were held. He points out not only the great table round which Arthur's Knights are said to have sat, but the long slit through which Henry III could learn what was going on in the hall, and take, sometimes, warning to vanish when barons were turbulent. But my friend, who, as an architect, had taken great interest in exploring the remains of the castle of Henry de Blois, leads me down to Wolvesey, which has been thought to be the island where Edgar had the destroyed wolves received, counted, and paid for. Massive and most interesting the Castle. How one would like to linger here, and then at the old school built by William of Wykeham, and at St. Cross where the old pensioners live, and where strangers can have still gratuitously—by an old gift—a gill of ale and a piece of bread. Needless to say I cannot pronounce on the quality of the ale.

But I want to reach Romsey by nightfall, for it is useless to travel too far in a day and so miss enjoyment. A peep the next morning at the fine old church where such splendid remains of Norman architecture are to be seen. As I approached that structure and saw its very broad lantern looming over the quaint houses of "timber-crossed antiquity" in the market place, I thought that few continental towns would show anything more striking. People rush off over the Channel before they know their own dear land. One inhabitant of Romsey complained, however, that it was a dull place. When I spoke with admiration of it, he said, "You are the first gentleman as ever I heard praise the town."

That single-arch bridge with the old-fashioned houses on either hand, and a broad, rapidly flowing stream, is a picture. There to the left, through the haze, is seen "Broadlands," the former home of that statesman who was such an embodiment of humour, sense, and probity, Palmerston. Well-placed it is, looking up the stream, over which such noble trees in such luxuriance bend. The trees are bare, but the sharp outlines of branches and twigs give an effect that any artist would enjoy.

About three miles to the westward of Romsey is Mottisfont Abbey, in which is a piece of mediæval needlework of the "Last Supper" that should have mention. Christ is thereon represented as in the



From a photograph

[by J. G. Short.]

THE RUFUS STONE.

road. Grand trees, and all covered with the triangular crystals of frozen mist. These, as the slight breeze rustles the branches, fall crackling to earth, and make a white carpet on the roadway 'neath each tree. How weird are these woods! Crunch, crunch, over the ice crystals. On upwards, now over

FROM LORD LEIGHTONS FRESCO IN LYNDHURST CHURCH.
THE TEN VIRGINS.



From a photograph
by J.G.Short.

And they that were ready went in with him
to the marriage: and the door was shut.

matthew XXV. 10

act of giving the sop to the astonished Judas, while in the foreground are disciples evidently anxious to clear themselves. The lamb and cups on the tablecloth are suggestive.

Now away through the New Forest with peeps at the Stone which commemorates the place where Rufus hunted and fell; at the tumble-down old cottage near to it; at the "King and Queen" in the Bouldre wood; at Cadenham with its furze-covered, pine-crowned hill; at Lyndhurst with its verderers' court-house all decked with antlers, and the church with the splendid fresco from the brush of him who was so long the President of the Academy, and who so recently passed from us. So charmed was I with that fresco of the "Ten Virgins" that I returned from Lymington for another look at it. Placed at the end of the chancel, the Christ seems about to step into the church. Perfect forms in chastened colouring make a picture to follow one for a lifetime.

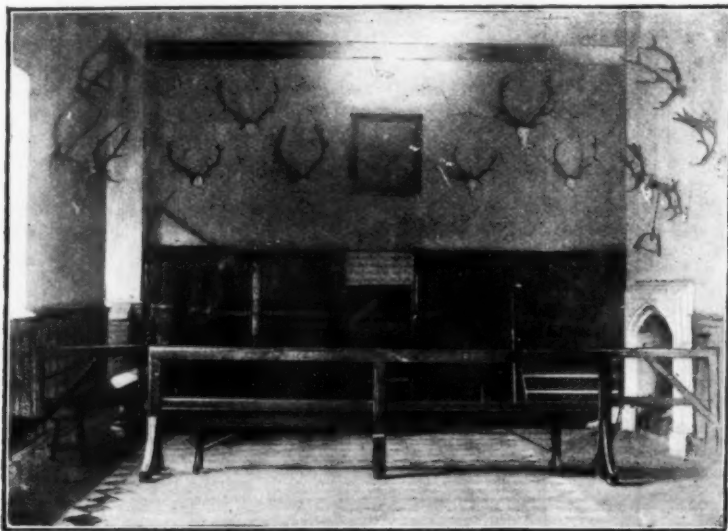
I ought to have said that at Lymington one gets many a charming outlook as well as much of interest in the steep and twisted lanes by the water-

side. Here is the Solent, which in summer is dotted with the yachts of the leisurely, and here are pretty steamers to carry one over to White Island. But look at this obelisk, and read the inscription. It is to the memory of the gallant Admiral Sir Harry Burrow, who "was distinguished in well-fought actions, took twenty of the enemy's fleet, helped to quell the mutiny at the Nore, received the friendship of George III, was thanked by the City of London, and was, in all the relations of life, perfect." One sentence records even "the beauty of his humility."

It is a temptation to run along to Bournemouth, and Christchurch, and Salisbury, but I must away back. Rains come down, roads are heavy, and so the South-Western soon landed myself and cycle in the midst of the millioned city, which, spite of its gloom and fog, is perhaps now one of the most interesting in all the world.

One comes back from such a brief spin feeling that "God has made everything beautiful in its time."

FRED HASTINGS.



From a photograph

THE VERDERERS' COURT, LYNDHURST.

by J. G. Short.

MODERN HYGIENE IN PRACTICE.

BY DR. ALFRED SCHOFIELD.

THE FOUR ELEMENTS:—WATER.

THIS last of our four elements is perhaps the most important of the series to health; for while on the one hand it is the most essential food of the body, on the other recent researches here and in India have demonstrated to what an enormous and unsuspected extent disease is dependent upon drinking impure water.

Water when pure is not a dubious mixture, like air, of gases in various proportions, but is, as we know, a definite chemical product, formed by the union of two volumes of hydrogen with one of oxygen, the three volumes condensing into two as the gases change to a liquid.

We say "when pure," for seldom indeed is this

interesting fluid composed of these two gases alone. We hear a good deal about the "adulteration of food" Act; but all the adulterations of food put together, or of other beverages, are not to be compared in importance with the adulteration of water. We will prove our words further on.

Curiosities of Water. Meanwhile, consider what a tricky sort of fluid this innocent compound is.

In the first place, it is protean in form: it can be in turns a solid, a liquid, and a gas. But that is not all. Fluids, as a rule, expand with heat; water, however, at 32° , when heated, begins to contract in volume until 39° is reached, from which point it expands. Water just about to freeze at 32° is therefore lighter than the water 7° warmer, and hence rises to the top—one result being that ice forms on our ponds first at the top, and not at the bottom.

We can just support our own weight when floating in water; how far we are from floating in air may be conceived from the fact that its density is 770 times less than water—or, in other words, for a full-grown man to float in the air, his body, while maintaining the same bulk, should not weigh more than two to three ounces.

Another painful eccentricity of water when it freezes is that, instead of contracting still more in its change from liquid to solid, it has the truly exasperating quality of expanding one-eleventh of its bulk, bringing destruction and ruin thereby into all our houses by burst pipes and boilers, and causing innumerable other evils.

If we take water at its other extreme—that of heat—its behaviour becomes positively weird. In its change from gas to water three volumes were reduced to two; in its transformation from water to vapour two volumes do not become three, as we should naturally expect, but over 3,000! It is true that, while the one volume of water is incompressible, these 3,000 are elastic; but this is only what we should expect. It is this mighty increase in bulk and elasticity that makes steam the mechanical power of the universe.

Steam, again, contains an immense amount of what is called latent heat, as it requires nearly 1,000 times as much heat to raise boiling water into steam as to raise water from 211° to 212° . We merely mention this in passing, as we do many other facts, by way of remembrance, and not to reduce these pages to the level of a class-book. We emphasise this point of the latent heat of steam, however, to bring intelligent opinion to bear upon the immense superiority of steam as a disinfectant compared with hot air. Air at 213° is 213° and nothing more, and very soon gets below this; but steam at 213° has a reserve force of latent heat in the background that renders it immensely more efficacious in destroying spores, penetrating as it does into the folds of the infected articles, and gradually parting with its latent heat. This cannot be too strongly insisted on, and certainly is not generally understood.

The sources whence we obtain water are mainly five in number—one from above (the rain), two from beneath (wells and springs), and two on the earth's

surface (upland waters, such as lakes and reservoirs and rivers).

Rain Water is Salt. It is generally supposed that rain water, at any rate before it reaches the earth, is absolutely pure. Such, however, is not the case. In the first place, we live on an island, and the result is that all the rain water in this country contains on an average about two grains of salt per gallon.

Then it always washes the air through which it passes, and hence, before it reaches the earth, is laden with spores and germs, and dust and particles of all sorts.

Even if it were pure, it is sadly deficient in quantity; for the rainfall in this country would not supply above 50 people per acre, although nearly 3,700 tons of rain per annum fall on every acre.

Rain water is not very palatable. If used for drinking, it should be stored in stone or slate cisterns underground, as at Gibraltar. Of the value of rain water for washing purposes we will speak later on.

Surface-Waters. With regard to the surface-waters, no river in England is long enough to purify itself from the sewage that falls into it. Naturally river water is extremely pure, and is much less hard than spring water, and would form a good drinking-water but for the reason given above. Nevertheless, London, as the largest city in the world dependent upon river water, draws up daily nearly one-third of the whole river Thames. Of course such water cannot be used directly, but requires the most careful filtration. The water is allowed, first of all, a week to settle in reservoirs, to give the coarser sediment time to settle, and it is then run off on to the filter-beds, which are several feet thick, and constructed of very fine sand upon the surface, with coarser sand and gravel below. The real filtering agent is, of course, the first inch of fine sand, and until lately, whenever this had been used a short time, it was removed and well washed.

A Living Filter. A most extraordinary revolution in filtration has, however, been brought about by our recent discoveries of the purifying and antiseptic powers of microbes. We knew they are the scavengers of the earth, but were slow to understand that they might with ease be pressed into our service and compelled to do our dirty work to order. A layer of mud containing millions of germs to the cubic foot is spread over the surface of the sand, and so far from being cleansed from impurities, it is never changed as long as the water will pass through. The result is wonderful. A jelly-like mass, consisting largely of living organisms, forms on the top, which is the real filter. These germs seize on and oxidise all organic matter so completely, and are themselves so incapable of penetrating the layer of sand beneath, that the water thus filtered is far purer than that passed through the purest sand. By this extraordinary means a living filter is constructed, and the bacteria are compelled to do our work just as if they were day labourers or other drudges.

Of this water Londoners consume some 30 gallons per head (being double the amount allowed in Berlin), over 120 million gallons being supplied daily for the direct use of the people.

Upland surface-water is very much purer and better for drinking purposes. It is also very soft, and great cities are increasingly looking to lakes for their supplies, and, if these do not exist, are creating them as needed, often, indeed, thereby rather enhancing the beauty of the neighbourhood than destroying it. Liverpool, Manchester, and Glasgow are now all supplied by this means with the greatest success.

As to springs and wells, the water varies considerably. Of course all that comes from deep sources is as a rule pure, but shallow wells in towns and villages are an unfailing source of disease, owing to their contamination.

In cottage gardens we frequently find two holes dug—one for sewage, the other being the well; and in some cases, where the soil is porous, this is deemed a positive advantage as regards the sewage, which leaks out so quickly as to save the trouble of emptying! Where it leaks to is generally the nearest well; and it is perfectly surprising to see how bright and clear the water often is from these "sewage" wells; and not only so, but how the constitutions of the natives can resist the sewage poison for years, though drunk daily. The leakage, which may have gone on for an indefinite time, perhaps, is only discovered at last by an epidemic breaking out from some disease germs imbibed. Of course the water will not keep, and becomes very foul and muddy after rain.

Deep wells always draw their supply from beneath some impervious stratum beyond the reach of any surface pollution, and the water often comes from a distance where this stratum rises to the surface. This diagram of the London basin shows how; the margins, for instance, of the lower gravel rising to the surface at Blackheath, Woolwich, and Reading.

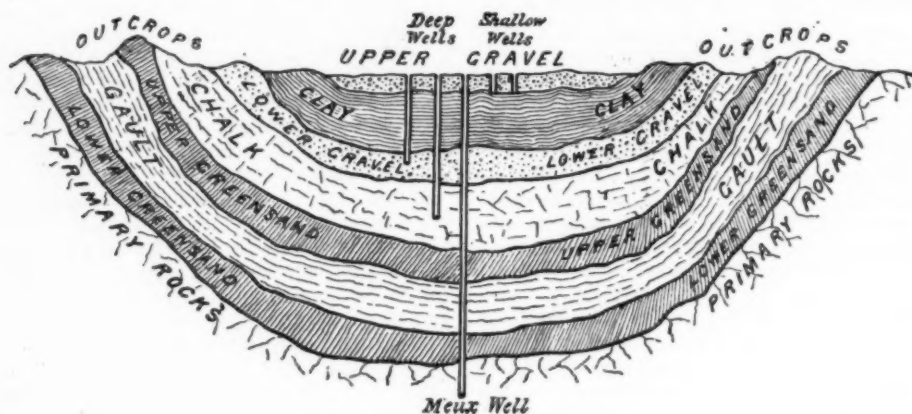


DIAGRAM OF STRATA IN LONDON BASIN.

At Trafalgar Square there is a deep well some 400 feet deep, which receives its water from Hertfordshire. Meux's celebrated well pierces all these strata to the depth of 1,146 feet.

Springs often form no inconsiderable part of the water supply of rivers. One that enters the Thames near Reading supplies to it some 300,000 gallons daily.

In England the best and purest spring water comes from the chalk and the New Red Sandstone.

An interesting experience, however, near Liverpool shows that the New Red Sandstone is not always to be trusted.

A deep well was bored into it at Liverpool nearly 500 feet, all being carefully bricked except this part in the solid rock. The result was that, there being large fissures in the rock, the shallow wells, many of them impure, for some distance round were drained dry into this deep well. The villagers, seeing these wells of no further use as wells, utilised them as cesspools. These gradually drained, of course, also into the deep well, the water of which soon became so foul it had to be closed, a complete system of drainage provided for all the district round, and it was eighteen months before the water became sufficiently pure to be used.

We may sum up good and bad drinking-waters by saying that springs, deep wells, and upland surface-waters are as a rule wholesome; that stored rain and lowland surface-waters are suspicious; and that shallow well and sewage river waters are dangerous.

Just lately, again, river waters have risen in repute, for it is found, if free from actual sewage, the germs in them have an antiseptic power rather than a destructive power on the human frame, and are thus more active for good than a pure distilled water that contains nothing but hydrogen and oxygen. It is, indeed, only gradually that we are getting over our insensate horror of all germs, and are beginning to discriminate between good and bad.

Water may be pure and wholesome and yet not palatable. Distilled and boiled waters are

instances of this, and the reason of their tastelessness is that they contain no air. Such water becomes palatable if poured over toast.

We have spoken incidentally of "soft" water, but the subject is so important that we must enter upon it more fully. Water is called "hard" and "soft" according to the amount of lime and magnesium

salts it contains. If not more than six grains per gallon, or, in other words, six degrees of hardness, it is called soft. If it contains more, it is called hard; and if the salt is carbonate of lime it is called temporary hardness, because the salts can be deposited by boiling; but if it consists of salts of magnesium, it is called permanent hardness, because boiling does not remove it. The latter is much the more injurious.

These preliminary facts are necessary in order to understand the immense practical difference between hard and soft water.

Hard water is, indeed, answerable for a long list of evils, few of which are really understood, though there is, no doubt, a floating idea that it is not all that could be desired. We will therefore try and point out in detail some of the objections to its use.

Washing. The first is with regard to washing, and is very little understood. Water can only hold a certain amount of solid matter in suspension. When it has taken up as much as it will hold it is said to be saturated. Now, in washing we want water that will take up as much dirt as possible; but hard water can do very little in this direction, being already so full of earthy salts. Any who put this to a practical test themselves for the first time, must feel greatly astonished at the amazing difference in cleansing power between hard and soft water. The addition of soap, alas! only adds to the difficulty. With hard water a scum of insoluble stearate of lime rises to the surface, formed of the combination of the soap with the hard salts of the water. This is one of the most effectual destroyers of beauty that we possess; few skins can resist the ravages caused by rubbing in its small crystals; and it is largely accountable for the elderly look that is so noticeable in those women who constantly have to use hard water for their faces. It really is worth while, on the score of beauty alone, to forswear the use of hard water for ever for the face.

But, after all, beauty is not our first consideration. We are essentially "a nation of shopkeepers"; it is, therefore, well to consider the economical aspects of the question.

Money Lost by Hard Water. Hardness in water is measured, as we have said, by degrees; one degree of hardness meaning there is one grain of earth salts in every gallon of water. Now, in ordinary hard water there are from 15 to 20 of these degrees of hardness. Each degree of hardness requires $2\frac{1}{2}$ ounces of soap to every 100 gallons to neutralise it, or, in other words, to form a good lather. If there be 16 degrees of hardness in the water, therefore, it requires $2\frac{1}{2}$ pounds of soap to produce a good lather on the water (which is absolutely lost) to every 100 gallons. An ordinary bath takes about 50 gallons of water, so this large amount is lost, costing, perhaps, a shilling in two baths.

The water now used in Glasgow comes from Loch Katrine, and is very soft, and it is computed that the annual saving to the city in soap alone amounts to some £36,000.

All clothes should be washed in soft water; all cooking should be done with soft water alone. The

reason tea is so often disappointing and unsatisfactory, and tastes more of hay than of the camellia of which it is supposed to be an infusion, is because hard water is used in making it. Nearly one-third of all the tea used in London is wasted by hard water.

The general idea is that the hardness is driven off the water by boiling it; but this is only true, alas! of the temporary hardness, and the permanent hardness remains.

Lead-Poisoning.

Although temporary hardness can be thus removed, it involves much expense and considerable trouble. The carbonate of lime rapidly encrusts our boilers and kettles and iron pipes, requiring a far greater expenditure of coal to heat them, and at the same time rendering them much more liable to burst. Why, then, is hard water used at all?

The answer is remarkable. It has long since been found that for water-pipes inside a house, where so many twists and turns are requisite, there is no material so convenient, so durable, as lead. Soft water, however, flowing through lead pipes, dissolves at once a small portion of the lead, and rapidly produces symptoms of lead-poisoning in those who drink it. This is not surprising when we remember that so little as one-tenth of a grain of lead per gallon is sufficient to produce these symptoms.

The purest, softest waters act most rapidly upon lead; on the other hand, if hard water is used, it forms at once a coating inside the lead pipe, completely protecting it from entering the water. Hard water, therefore, is so largely used, not only because it is so readily attainable, but because it is such a safe water, from these reasons, for domestic purposes. On every other ground it is a nuisance.

This protective coating of our lead pipes gives us a hint, if we possess lead cisterns, not to have them scraped when cleaned, so as to remove this coating on the surface, but merely wiped with a soft cloth. Too much zeal in this case might readily do a great deal of harm.

Moderately hard water is not injurious for drinking, and is very palatable; but if it is very hard, and particularly if there be much permanent hardness in it, it is bad, especially for those who have any predisposition to gout.

And now, having made all my readers thoroughly uncomfortable, let me turn to the question of remedies; for there is no more thankless, and to my mind no more useless, office than that of a critic who finds fault with everything we have got, and does not tell us how to improve it. Most of us, in large towns especially, are supplied with hard water, and to tell us of the virtues of soft, when we cannot get it, is unkind.

How to Soften Water. Chemistry has here come to our aid, and gives us means whereby water can be artificially softened much more thoroughly and cheaply than by boiling it. We must not mention here the different well-known powders that are added to water. Suffice it to say that if at night as much of one of these powders as will stand on a penny is added to a

large ewer-full of hard water and stirred, by the morning most of the salts in that water will have been carried down to the bottom with the powder ; and if the clear water be now poured off, it will be found to be exquisitely soft and fit for the most delicate purposes.

Even shopkeepers like ourselves like to have nice faces, and therefore many efforts have been made to preserve the softness and beauty of the skin. It has been largely thought by the public generally that the great point to consider was the sort of soap that was used ; whereas, as we have pointed out, the finest soap is worthless if hard water be used. The first point, then, to see to is that we wash in the right sort of water ; the right sort of soap is a secondary consideration.

This error as to soap spoiling the complexion has led very largely to its disuse, with results that are not gratifying in our grimy, smoke-laden atmosphere. If plenty of hot, soft water be used, any mild, well-made soap (here, again, we must not mention names) can be used freely and well rubbed in every part of the face, it being afterwards, of course, as thoroughly washed away. Without entering into further details, we can safely say that the little trouble this involves is repaid a thousandfold by the increased beauty of those who take it.

Impurities in Water. The subject of impurities of water is a large one. We have already alluded to lead-poisoning, and shown how perfectly it is prevented by the use of hard water. But there are many other forms of poisoning in water besides lead. In fact, recent researches are so exhaustive, and have discovered so much evil in this innocent-looking fluid, that the part of a conscientious teetotaler becomes increasingly difficult.

The appearance of water is absolutely no safeguard ; sewage water, containing every form of organic impurity, may, as we have said, be perfectly clear, and is very often sparkling. We have also shown that among those who are accustomed to its use it may be drunk with impunity for years, and is even stated to be absolutely fattening ! No water is, therefore, really safe to drink unless its source be known and its purity beyond suspicion, or it be *boiled*.

There seems to be, unfortunately, a not unnatural prejudice against the use of boiled water. It is insipid and not always quite cold. Under these circumstances the British matron is apt to fall back on the domestic filters. That is, indeed, a disastrous and dangerous error.

Filters. A filter, as a rule, is kept in the basement, and although regularly supplied with water, at any rate when the family are at home, is seldom or never cleaned. Recent researches unfortunately show that, whether it be cleaned periodically or not, it is no absolute safeguard, for it has been clearly proved that all ordinary filters, after a day or two, largely increase impurities in the water. They are, indeed, germ manufactories ; and water comparatively free from germs obtains innumerable organisms when passing through an ordinary or neglected filter. The idea of straining off impurities by charcoal and other powders is

good enough if the water to be filtered contain any impurities coarse enough not to escape ; but we may be thankful that all the water supplied to our houses has been already filtered with more thoroughness than we can do it at home. All filters are, therefore, to be banished from the house rather than so used as to accumulate and distribute germs.

There are perfect filters, the use of one of which has decreased the number of cases of typhoid fever in the French army over 60 per cent., and which absolutely strains off all germs. In these filters the water has to force its way through the microscopic pores of unglazed porcelain, or fossil clay, which are small enough to strain off the minutest organism. Even these filters have to be placed in boiling water every other day to keep them in perfect order ; but this entails very little trouble.

Beverages. With regard to aerated waters, we must always remember there is no absolute safety in drinking them if they are artificially made. Natural effervescing waters, bottled at the spring, are presumably quite safe. We mention this because so many travelling abroad, and distrusting the water of Continental hotels and restaurants, take refuge in syphons, which may be quite as dangerous.

The great advantages of beverages that can only be made with boiling water are obvious.

Water-borne Diseases. The two principal diseases conveyed by water are typhoid fever and cholera. Nearly every outbreak of typhoid fever has been traced to impure water. If nothing but boiled water were drunk by the community, it would do more to stamp out typhoid fever than any other means that can be conceived. Of course in this we include the water so frequently found mixed with milk. If we are to drink, therefore, nothing but boiled water, it means we must boil all our milk as well.

There can be no doubt that the extent to which typhoid fever still prevails in this country is a disgrace to us, for it is not only a preventable disease, but one without any redeeming quality. It kills people quietly, in large numbers, without any sensation ; therefore it is no good as a preventive, for people are not as afraid of it as they should be.

Cholera differs from this *toto cælo*. It is undoubtedly our best sanitary inspector. Most of the drastic reforms that have been carried out in sanitation throughout Europe have been suggested by Inspector Cholera. This disease is still a terror ; and so long as it continues so, it is difficult to say whether it destroys or saves the most lives. All our ports have been put in drawing-room order, under the orders of this Inspector.

Cholera. Cholera is undoubtedly a water-borne disease. The classical case that inaugurated the epidemic of 1866 is well known. A man in Southampton travelled up to town, and took lodgings in a house in the north-east of London, near the Lea. He there had a mild attack of cholera, with the result that the water of the river was contaminated. The water company that

derived its supply from this polluted stream unfortunately happened at the time to have its filtering-beds out of order for twenty-four hours, with the result that the cholera germs were distributed widely enough to cause the deaths of 16,000 people. Of course if the 16,000 had boiled their water they might have escaped. It does not matter where we go, whether to India, Mecca, Hamburg—where the last outbreak left its plainly written lesson—or Marseilles, we find in every case the epidemic is caused and spread by drinking dirty water.

The river at Marseilles received its cholera germs in a remarkable way. Twenty corn mills discharged their refuse into it, the corn coming from Russia and India, where it had been trodden out and handled in cholera-stricken districts. The condition of the Holy Well at Mecca is wholly indescribable in these pages.

Perhaps, indeed, we have said too much already ; and yet, it is not too much if it leads every reader of the "Leisure Hour" henceforth to forswear unboiled water, unless derived from a known and perfectly pure source.

OCCASIONALITIES.

Our readers are aware that the British Museum owes its origin to a lottery, but they may not know to what a large extent the lottery system prevailed. The government raised the money for the Seven Years' War by lotteries, as they did that for the American War. From 1785 to 1823 there was a Lottery Act every year, which brought in the State over a quarter of a million a year. In the early part of last century the country was lottery mad. Independent of the State lotteries, there were lotteries for land and house property, jewels and plate, merchandise and ships, and even advowsons and presentations. The prizes now offered by our magazines and periodicals are no new feature. They were in full swing in 1772, only the lottery element came in largely with regard to them. Tailors advertised their business by means of lotteries ; so did hatters and glovers. Men went to be shaved for threepence, in order that they might stand a chance in the barber's lottery, which had £10 prizes. Even the bootblacks gave away coupons, entitling their customers to a share in lotteries. A plate of meat at an eating-house gave the purchaser a chance of sixty guineas. Three pennyworth of oysters included a ticket in a five-guinea lottery. Even a sausage stall had a lottery attached, offering the chance of a five-shilling prize to everyone who ate a farthing's worth of sausages. At one time every lottery office had to be licensed, but even that failed to check the rage for speculation. At last the whole system was swept away by the Lottery Act of 1823, which was really the outcome of the Parliamentary Committee that was appointed to consider the subject in 1808. An extract from their report will show that even such a Committee can speak out sometimes.

"The foundation of the lottery," they say, "is so radically vicious that your Committee feel convinced that, under no system of regulations which can be devised, will it be possible for Parliament to adopt it as an efficient source of revenue, and at the same time divest it of all the evils and calamities of which it has hitherto proved so baneful a source. Your Committee find that by the effects of the lottery, even under its present restrictions, idleness, dissipation, and poverty are increased, the most sacred and confidential trusts are betrayed, domes-

tic comfort is destroyed, madness often created, crimes, subjecting the perpetrators of them to the punishment of death, are committed, and even suicide itself is produced, as will fully appear by the evidence submitted to the House. Such have been the constant and fatal attendants upon State lotteries, and such your Committee have too good ground to fear will be their invariable attendants so long as they are suffered, under whatever checks or regulations, to exist."

A Year's Fish Bill.

It appears that 700,000 tons of fish are landed on the coasts of the United Kingdom in a year, caught in British seas in British boats. Taking these fish at the prices at which they are landed, without any of the additional cost of carriage and curing, which would be about double the value, our fisheries are worth over £7,500,000 a year, while those of France are only worth some £4,600,000, and those of Canada £4,300,000, these being the three great fishing countries ; Norway, of which we have heard so much recently, producing but £1,272,000 from her fishing boats, while Holland produces even less. Of what is this enormous total of fish made up? As far as weight is concerned, the chief item on the English and Welsh coasts is haddock, of which 2,432,938 cwt. were landed last year, herrings ranking next with a weight of 1,436,701 cwt. Of the other fish the quantities were much less. The plaice landed amounted to 789,123 cwt. ; the cod to 495,293 cwt. ; the mackerel to 374,616 cwt. ; hake, of which more is caught every year, amounted to 132,462 ; ling to 114,118 cwt. ; and halibut to 113,623 cwt. ; none of the others—sprats, soles, turbot, pilchards, brill, or otherwise, the quantities of which range in the order named—amounting to 100,000 cwt. Including the Scottish and Irish supplies, the United Kingdom in 1895 consumed 5,639,000 cwt. of herrings, 3,464,000 cwt. of haddock, 997,000 cwt. of cod, 690,000 cwt. of mackerel, 306,000 cwt. of ling, 106,000 cwt. of sprats, 103,800 cwt. of soles, and various other fish, the whole amounting to 14,000,000 cwt., added to something like £388,000 worth of crabs, lobsters, oysters, prawns, shrimps, and other shellfish. Truly a nice little fishmonger's bill. It is interest-

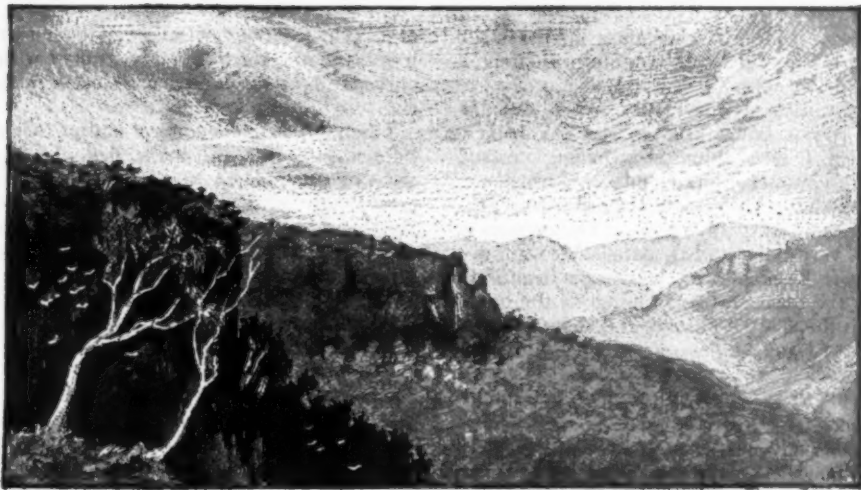
ing to note how widely the prices charged by our fishmongers differ from those received by our fishermen. These large quantities valued out at the money paid for them show that the landing price of our soles was about a shilling and a half-penny a pound, that of our turbot eightpence farthing, that of our mackerel a penny and a third, that of our cod and haddock each a penny, that of the fishermen sold our herrings at two pounds for a penny and our sprats at three pounds for a penny, and that even for our lobsters they barely got tenpence each, and for crabs a little over twopence farthing. Evidently the price at the boat is regulated by the supply, and not by the demand at the shops. It is certain that the merest trifle of the difference goes to the railways, for the average rate the fish pays is under a penny a mile for every 2,240 lbs. Even at this low rate the fish business is of considerable importance in railway revenue, for over 445,000 tons of fish are carried by rail in the course of a year. The great fish-carrying line is the Manchester, Sheffield, and Lincolnshire, which last year took away 88,000 tons from Grimsby and Hull; next to it comes the North-Eastern, which last year carried 72,000 tons; the Great Eastern carried 58,000 tons, the Great Western 33,000, the Hull and Barnsley 18,000, the Great Northern 10,000, the Preston and Wyre carried 9,000, and the North-Western 8,000. By far the larger portion of our fish comes from the East Coast; last year the amount received at the ports between Berwick and Margate was only a few thousand under six million hundredweights, while the west coast only received 684,000 cwt., and the south coast 588,000. As far as value is concerned, the fish caught on the west and south coasts was worth about a million and a quarter out of a total of five millions and a half. On the east coast the chief fishing port is Grimsby, which last year accounted for 1,669,000 cwt., London occupying second place with 1,047,000 cwt., Hull coming third with 926,000 cwt., Lowestoft fourth with 628,000, Yarmouth fifth with 562,000, North Shields sixth with 285,000, and Scarborough seventh with 274,000. On the south coast the principal fishing port is Plymouth, which in 1895 received 118,300 cwt., Brixham coming second with 77,400, Ramsgate third with 38,500, Folkestone fourth with 28,300, Hastings fifth with 26,000, and Brighton sixth with 25,700. On the west coast the ports are comparatively few. The east coast has 49 fishing ports, the south 65, the west only 41, including the six in the Isle of Man. The chief west-coast fishing port is Milford, with 150,000 cwt. last year, Fleetwood being second with 135,000, Neyland, to which so much of the fish caught on the Irish coast now comes, ranking third with 104,000, St. Ives coming fourth with 77,000, and Liverpool fifth with 52,500. In Scotland the chief fishing port is Aberdeen, which last year sent away by rail some 460,000 cwt.; in Ireland the chief fishing port is Valencia, from which last year 34,000 cwt. were sent away. In addition to the 14,000,000 cwt. of home-caught fish, this country last year imported 2,458,000 cwt. of fish, either fresh or salted, and exported 328,000 cwt., so that the total consumption was 806,345 tons.

The Traffic at
a London
Terminus.

It is really wonderful how the increasing business at our great railway stations is dealt with so satisfactorily—as it undoubtedly is. The man who is intent on catching one particular train rarely takes much account of what is going on around him. If he were to see the day through at one of our stations he would perhaps be rather surprised at the multitude of which he is a unit. Take that maze of platforms we know as Waterloo. Into Waterloo station during the twenty-four hours of the Saturday before last Whit-Monday there came 945 trains, and from it departed 985—that is to say, 1,930 trains had to be dealt with during about eighteen hours, for the traffic between midnight and six in the morning is practically nothing. Waterloo is of course a big station. It takes about 600 men to work it, of whom 37 are parcels clerks, 25 booking clerks, 18 telegraph clerks, and 19 inspectors, the porters, shunters, and others numbering 504. As a contrast to Waterloo the South-Western possesses one of the smallest stations in England, where the entire staff consists of a station-master and a boy. We see that Sir Charles Scotter is calling attention to the fact that for five years the South-Western has not killed a passenger. May the good fortune of the line continue!

Lengthening a
Cape Liner.

We do queer things in shipbuilding nowadays, but perhaps the queerest is when we enlarge a ship by lengthening her. That well-known Cape liner *The Scot* has undergone this operation at Belfast. A dock was prepared with blocks capped with steel for her after-part to rest on, and launching ways for her fore-part, all most carefully trued and tested. Then she was floated in, and as the water was run off gently settled on her temporary resting-place. Then a cradle with great baulks of timber eighteen inches square as a base was built up around her forward, fitted with chains and other devices to prevent her not only dropping out of the vertical, but swinging out of the horizontal. Meanwhile all the rivets in her mid-ship section were being bored out of her shell-plating, frames, and stringers; temporary supports of timber being used to keep everything in its place, all the horizontal projections being greased so as to slip easily when the movement began. Then plates were bolted on her, and the powerful hauling gear fixed on. Two steam winches at the dock gates, fed by a four-inch steam pipe, were brought into play, and hydraulic jacks were applied to start her. On Monday, March 9, the word was given to go, and the bow of the ship moved slowly along the well-greased ways to the stops in advance. And there she was left in two halves waiting for her new middle, which would make her fifty-four feet longer than she was when built. There are many ships afloat that have been lengthened in this way, but the operation is always a delicate one, such extreme accuracy being required, and the difficulty in dealing with such huge weights being so great that the shipbuilder is always glad when the vessel is afloat again.



IN THE BLUE MOUNTAINS.

A TUTOR IN THE BUSH.



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FIRST SIGHT OF SYDNEY.

It was just over a century ago that Captain Cook first steered his little ship through the Botany Heads, and discovered the bay that bears that familiar name. Shortly afterwards, only a few miles north, Port Jackson was discovered, and the pioneers who passed the cliffs now known as the Sydney Heads entered one of the most beautiful harbours of the world. The voyager now on approaching is pointed out a gap in the frowning South Head where, as living men remember, the ill-fated emigrant ship, the *Dunbar*, struck one thick night, mistaking it for the entrance to the harbour; so near its destination, yet one man alone out of hundreds lived to tell the tale.

With a sweep round the head the steamer enters the channel. Bays and creeks open up to the vision every few minutes as the boat glides on. Small islands and peninsulas, thickly scrubbed, are passed. Now and then a small group of houses comes in view; large mansions are dotted here and there, half hidden in the foliage of their large estates. Ferry-boats scuttle across, and yachts innumerable dot the clear blue water.

VERY month young Englishmen are going forth to make new tracks for themselves in countries unknown. The following notes describe life as I found it under ordinary conditions in New South Wales.

On landing at the circular quay the stranger cannot but be struck by the city. It is difficult to realise that the main street, George Street, little more than a generation ago was but a bullock track winding through the scrub. It still retains one characteristic of its former use, for it runs through the city with anything but a straight formation. The city abounds with open spaces, the chief and most attractive being the magnificent Botanical Gardens.

HORSE-RACING.

The stranger who remains in Sydney even a short time cannot fail to be struck by the place which certain classes of sport have in popular favour.

There is a race meeting nearly every day of the week. To supplement the ordinary racecourses, there is one in a thickly populated suburb lit up by electric light. Every week night the place is thronged; either pony races, cycling or pedestrian races are the attraction; and no matter which it is the noisy throng of "bookies" is always there. The bookies have their recognised offices in the chief streets of the city, their business name and trade duly advertised on the window as any other trade. Wires from the different courses are continually coming in, and are posted in many public places, drawing small or large crowds according to the importance of the event.

In the "back" country, a racecourse is one of the first cares of a youthful township.

CROSSING THE BLUE MOUNTAINS.

One night I took my seat in the eight o'clock western mail for Bourke. We started up to time, and in an hour, after passing rapidly through the large suburbs which seemed but a blur of constant

light, we were toiling and puffing up the steep ascent of the Blue Mountains. Unfortunately it was a moonless night. I had heard a great deal about the beauties of this range, and I was disappointed at not being able to see them now. Opportunities I had afterwards, having crossed them since five times by rail and once on horse, though, in the latter case, higher up, over that portion termed the Liverpool Range. The scenery is very grand, very bold, and I dare say to an eye unused to our English rural landscape beautiful; but I prefer the quiet and soft tonings of the home landscape to the sharp contrasts and ruggedness of the Australian Range.

In the preface to Lindsay Gordon's *Poems* I came upon a very good description of the mountain scenery:

"The Australian mountain forests are funereal, secret, stern. Their solitude is desolation. They seem to stifle in their black gorges a story of sullen despair; no tender sentiment is nourished in their shade. In other lands the dying year is mourned, the falling leaves drop lightly on his bier. In the Australian forests no leaves fall. The savage winds shout among the rock cliffs. From the melancholy gum strips of white bark hang and rustle. The very animal life of these frowning hills is either grotesque or ghostly. Great grey kangaroos hop noiselessly over the coarse grass. Flights of white cockatoos stream out, shrieking like evil souls. The sun suddenly sinks, and the jackasses burst out into horrible peals of semi-human laughter and the weird mopoke flits around, reiterating its strange cry. The natives aver that when night comes, from out the bottomless depth of some lagoon the Bunyip rises and, in form like a monstrous sea-calf, drags his loathsome length from out the ooze."

We experienced the chilliness of the air on Mount Victoria in the small dark hours of the morning, the Zig-zag was passed, and we accelerated our speed on our downward run into Bathurst, an agricultural district. From Bathurst to the neatly laid-out town of Orange, nestling beneath the Canobolas Heights, covered with snow last June, we passed, and thence to Dubbo. Soon we enter the back country, or what is termed by the people down below—that is, at Sydney—the "back blocks." This is the commencement of the Western plain country, where children grow up without the knowledge of a hill. The rolling grassy plains of the wet season, the great dry brown expanses of the summer, alternate with the bush, and from

Dubbo to Bourke, a distance of over two hundred miles, the line runs perfectly straight with never a curve, and, as far as eye can judge, with never a rise.

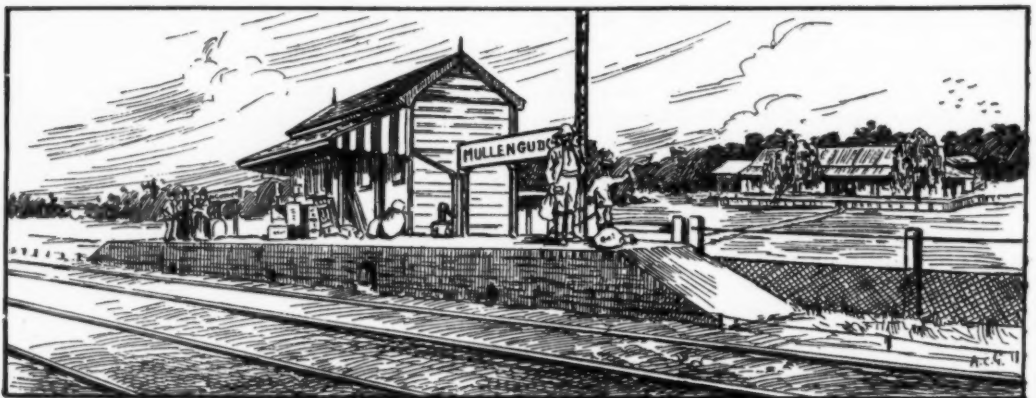
Often on Mullengudgery station, when I have been waiting with the mails, have I seen the first signs of the train at Nevertire, twenty miles down, and I have watched the smoke disappear as it stopped at Nyngan, westward eighteen miles.

At 10 A.M. we reached Nevertire, a small straggling township. On the verandahs sat bushmen with rough exteriors, bronzed with the scorching sun, and trained by their solitude to few words and much thought.

Later in the day a coach took me on to Warren, fifteen miles, my next point. That coach journey was the roughest, the hottest, and the most uncomfortable experience I had in the coaching line, even in the colonies. It was over 100° in the shade; the flies were everywhere in myriads. The coach itself was a gaudily painted nondescript vehicle with a hood, drawn by four spirited little horses. Here and there we passed a broken waggon, a wool-waggon bogged, or a remnant of a wheel, shafts, and other wrecks. The roughness of the track made little difference to us. No sooner was the one wheel down eighteen inches or so in a rut, than it would jerk just as suddenly out into the air as the other wheel went down. Snakes Plain over, we tracked through the bush; and as I held on to my worldly possessions with one hand, and the side of the car with the other, I witnessed some of the most wonderful driving—reckless it seemed to my experience—as the driver of Her Majesty's Royal Mail dodged the trees, and turned his horses and coach almost at right angles.

Warren is a bush township of some pretensions; the business street is very wide. Here the squatters from the stations around drive their pairs or three- or four-in-hands full tilt, creating a whirlwind of dust, and the men canter as if they were a piece of the horse itself. The various stores and houses are built of wood, roofing or verandahs projecting over the pathway to keep off the glare and heat of the sun.

Hotels occur at frequent intervals, with tempting verandahs and seats in the shady corners, occupied



by small parties of men, with the broad-brimmed felt hats, moleskins, and brightly coloured shirts; smoking of course, quiet and serious if sober.

MY HOME AND PUPILS.

Having lunched at the Club Hotel, I sat on the verandah watching this new life, and speculating on what was to come next. From inquiries I learnt that the place for which I was bound as tutor was a "selection," and that my future "boss" was a teamster. I learnt this with great surprise, as the agent in Sydney had led me to believe that I was going to a "station." Between the two there is an enormous difference.

Somewhat late in the afternoon a shabby-looking buggy came down the street drawn by a dejected-looking animal supposed to be a horse. It pulled up at the hotel. The occupants were a woman, who was driving, and a baby; a little lad of ten followed on a not bad-looking pony. This party had come for me. I began to feel uneasy, for I wondered whether I should be expected to drive while the good woman nursed the baby, or whether she might not expect me to hold the baby while she drove the fifteen miles.

It turned out splendidly as it happened, for, in spite of my gallant willingness to sacrifice myself, she persisted in doing both, my only duty being to get down now and then to let down the slip rails. She apologised on behalf of her husband, for he was away with the team. My box placed in the buggy, we started off. I kept silence, waiting for new developments. I did not wait long before I was informed that they had no room in the house for me, but were thinking of building a school-room for me if I decided to stop; and in the meanwhile they would give me a tent. Later on she told me that she kept no servant, but did all the housework herself, and had so much to do that—"if I did not mind, would I do my own washing? It was the usual thing." No, I did not mind; I had not had experience then, and I would object to it now.

Leaving the town eastward, we crossed the Macquarie. The river is wide, and its steep banks are fringed with big eucalypti. Amid their dark green foliage the magnificent sulphur-crested cockatoo screeched discordantly. Rose-breasted parrots flew in mobs across the plains at sundown. We disturbed bunches of them from the thistle beds, and they would fly away screeching, settling eventually on some dead limb or tree, entirely covering it. It gives a tree a very strange appearance to see either the white or rose cockatoos covering every limb, side, by side, in rows. The very tree seems alive, for the birds appear to be a part of it.

Out on the plains at Gillendoon the red kangaroos sat erect in the grass and stared at us for a minute, then hopped away with a series of long leaps, the young ones—or joeys, as we call them—bobbing up and down and making as much headway as their parents.

The animal that haunts the plain is of a rich rufous brown, the females a blue grey; but the

great old men of the bush are of a dark brown hue.

We arrived at the homestead while the laughing jackasses were enjoying their evening laugh. They seem to take life as one great joke; they laugh at sunrise and at sunset invariably, and at odd intervals during the day. In the deepest recesses of the bush they will suddenly startle one, breaking the absolute stillness that pervades during the noon-tide hour. As is the case with us human beings, it usually takes two to make a laugh, only in their case one will take the treble and the other the bass, slow at first, increasing rapidly till it reaches a climax. They are especially fond of settling near a camp, a foolish propensity that often costs them their lives.

The homestead consisted of a two-roomed verandah house constructed neatly of slabs and roofed with corrugated iron. In front an effort had been made to construct a garden, but owing to neglect it was overgrown with weeds. A vine scrambled up the pillars of the verandah and a couple of rows of orange-trees stood on one side. Behind the house was a humpy—that is, a dwelling built roughly of logs and roofed with the rough bark stripped from the great trees around.

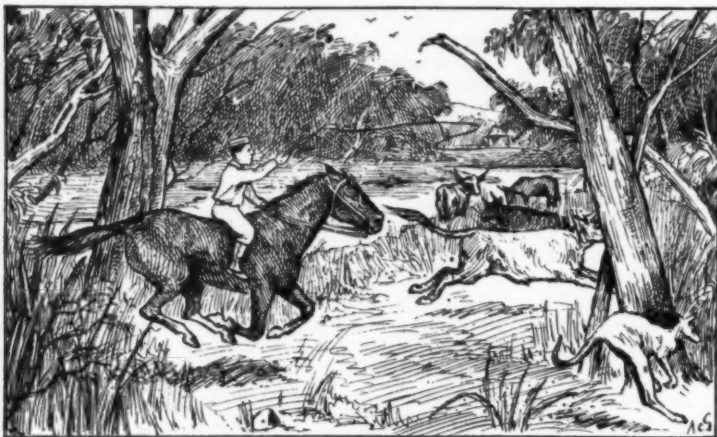
This humpy was the dining-room and school-room and kitchen. The floor was the bare earth, and the cooking was done in camp ovens over the open wood fire. Here I used to grill whatever game I shot. The rose-breasted parrots that we so often see at home in cages were nearly equal in flavour to the black and teal duck; and the few varieties of pigeons made a very pleasing change from the everlasting boiled mutton. My tent had been rigged, twenty yards away, near the out-building; in it was an iron bedstead, a great luxury for an outside man. My first impressions of tent life were by no means comfortable. Viewed from the distance it is charming.

The great gaunt gum-trees bend their dead limbs in every direction, as if in the last agonies of death; the wilgah and feathery yarrans stand out strangely in the moonlight that casts a silvery whiteness on my canvas dwelling. From the very first night I realised that I had to come to an understanding with petty nature. The flies intrude by day, and the mosquitoes, moths, green frogs, and other horrors by night. Mosquitoes were bad enough here to necessitate my keeping a smoking bucket at the entrance of the tent.

Sleep, for the first night or two, was out of the question, for the strange sounds were intensified by the hollow canvas. Nervously shifting in my blanket, I listened anxiously for every sound I least wished to hear. The loaded guns in the corner failed to give that sense of security that they should have done.

The weird cry "Maw-pawk" of the Boobook owl was broken by the distant bleating of sheep or the bell of a horse borne over by the breeze. Suddenly the would-be sleeper was startled out of his wits by the crash of a falling limb from some bush giant. The next minute—it seemed half an hour—I thought I was surrounded by a mob of wild horses; they seemed to thunder down close to my tent—I could feel the ground shake as if a wild

stampede was taking place; but, as I found out afterwards, it was only the emus bumping with their strong feet, a favourite pastime of theirs, as is the wild corroboree of the Aborigines. The chirrup of the cricket, the war song of the mosquito, and the pleasing moan of the wind, were too incessant to be startling; but I, the unfortunate victim of a new life and new habits, lay restlessly watching the



MY ELDER PUPIL.

moon through the canvas slowly, all too slowly, traverse the sky. However, one soon gets used to it, and now I look back on my three months of tent life and subsequent five weeks of camping beneath the heavens, with nothing but the shade of some tree between the moon and myself, with great longings.

I was by no means hard worked. At daybreak I was up, drawing water at the well. The first bucket for the day was always the most interesting, for the little creatures that had fallen in during the night would cling tenaciously to the rope or to the handle; some mornings a snake or two would come up, to meet a quicker death than drowning. Once, to my surprise, a large iguana, measuring four feet, in the last stage of exhaustion, was clinging for dear life to the rope. It is during the hot weather and droughts that these creatures make for the water. Young Will, my elder pupil, of ten years, would saddle up and go off for the cows across the Yellow-water hole; sometimes, if his father were at home, he would muster the team of horses. The early mornings soon passed, either in the garden or the milking-yard, where I received my first lessons in milking, an art that stood me in good stead in my later colonial life. At nine o'clock school commenced; my pupils were Will and his young brother Arthur, aged eight, whom I took only in the mornings. They knew absolutely nothing, but were fairly apt, and I succeeded in getting them along very well, considering the various interruptions—for we, being the only hands on the selection, had often to leave lessons for sheep work or other necessary jobs that cropped up every now and then. Let me quote an extract from my diary describing a day with perhaps more interruptions than were usual.

SCHOOL TIME.

School is late this morning. A party of fishermen from a neighbouring selection have left all the gates open, and Will, my elder pupil, mounted his horse immediately after breakfast, and has ridden to the boundary gates to see if they are secure. In consequence of the carelessness of our neighbours, the cows wandered into the large bush paddock across the Yellow-water hole, and we have had no milk this morning.

At a quarter to ten we began school in the log house. It is deliciously cool, for the air comes in through the gaps in the logs and the chinks in the bark roof, and we are seated before the open window, the tutor in the middle and a pupil either side. The wheat, already ripening, shows its heads just above the window-sill, and the butterflies sport in the warm rays of the western sun; beyond we see the cow-sheds, where the old turkey gobbler struts about, the monarch of the poultry-yard. The turkey-hens, all regardless of their mate, are intent on picking among the grass. The guinea-fowls are busy, and the fowls walk abroad with their numerous broods. Beyond, again, the withered ring-barked timber casts its dead arms imploringly towards the sky; then the happy families and kingfishers disport themselves. A bee-eater, a brilliant little fellow with a crimson crown and a back of metallic green, is boring a hole in a sandy pit not fifty yards away, making her nest, if the bare mother earth may be so called.

Dictation heads the routine of the morning's school work, and I gave Will, a rare young sportsman, a piece from one of Richard Jefferies' books. We have not proceeded far in our work before the younger—it seems ever that the younger has the sharpest eyes for outside incidents during school hours—notices that the foal has broken loose in the small wheat paddock. This means a general exodus from the room to drive him back to his proper quarters. Look out for his hind legs, for he is apt to kick.

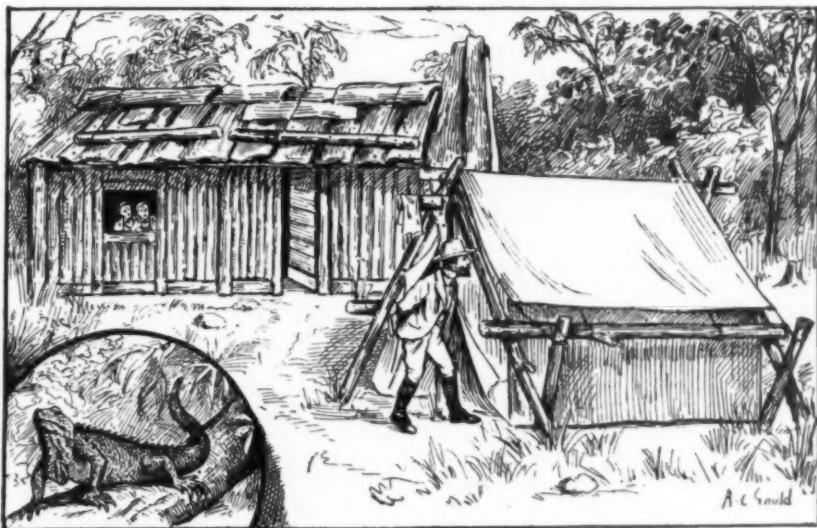
The clock for the next half-hour moves on slowly and tranquilly. We pass on from dictation to spelling. A wasp is busy forming the cells of his nest on the rafters, and a little black-and-white Willy-wagtail (family Rhipidur) sings out "Pretty little creature" from just beneath the window. Very soon an old crow flies into a yellow box-tree that overlooks the poultry-yard, with an eye on the young broods. The falling notes of "Caw, caw, caw, caw," float down on the summer breeze, and I leave the schoolroom, with the two youngsters eagerly watching me from the window, make my way to my tent for my gun, carefully insert a charge of No. 2, fearful of making the least noise, and stalk towards the tree with the death-dealing weapon behind my back. The crows here in the bush know a gun as well as they do in the old country, know well too if it is loaded—whether they scent the powder, or are scared by the serious look on the man's face. The cunning bird has scented danger, and has shifted farther down the paddock. I follow slowly and stealthily, availing myself of every cover, till at last I stand within shot. A puff of bluish-grey smoke, and the crow is struggling in the grass. He is soon hanging up near the shed, head downwards, and wings flapping with the wind, in company with two others, as a warning to his dark brethren. The gun is stowed away in the corner, school is resumed, and goes forward without interruption for the rest of the morning, only that Arthur looks up from his slate at odd intervals, asking, "Is it twelve yet?" or, "Is school nearly over?" Poor little fellow, tied down to his lessons, while from out the window he can see all nature free. The butterflies flit to and fro, the kingfishers croak as they find an iguana, the crickets chirrup, the wood swallows and fairy martens circle in the bright sunny atmosphere. Even the domestic animals act independently; the

fowls walk unceremoniously into my tent to get a peck at the mutton-fat in my slush lamp. Fortunately twelve chimes out louder and longer than any of the other hours. The moment of freedom comes; Arthur and Will seize their hats and rush out to forget most of what they have "learnt." The poor tutor puts away the book, and then shoulders his gun and walks away into the bush till the dinner hour is at hand.

At four o'clock we would sometimes put the old mare into the dray and drive out into the bush to fetch in a load of rails or fencing posts. My pupil handled his axe with a bushman's ease, and readily taught his tutor all bush work. At those times the mare was our only trouble, for we would leave her with half a load of rails while we went away to cut more. On our return we would find her lying on the ground, jammed between the shafts in a dead and dreamless sleep, all unconscious of the rails that lay on top of her. Our load safely brought home, shortly before sunset young Will would go for his cows, and I sometimes to the garden, digging or constructing a fence, and sometimes into the bush with my gun.

On Saturday afternoons we made a point of going over to the Macquarie, and it was seldom we returned home without an eight-pound fish and a couple of wild sucking-pigs that would persist in squealing as we carried them across our saddles. We tried once walking them home with a string to their leg, but it was hardly a success; for every now

rose from beneath one's feet, and it was only necessary to mark them down in the distance, and exchange the fork for the twelve-bore gun. Coming home not long before sundown, I found that Bill and Peter had gone off to the river fishing, and had left instructions as to route should I care to join them, which were repeated to me all save one little detail. I was to follow the old fence about five miles—the wire had been taken out and only a few old posts left standing to guide. I had never been along there before, and knew well that, unless I could get to the river before dark, it would be useless to go. After a hurried tea of bread and honey, I quickly put a bit of cake and a fishing-line in my pocket and hurried off. The fence led through the bush, a sheep-track running alongside, across whose dusty way one came every now and again upon the trail of an iguana or the shiny track of a snake. The sun was already low and the shadows lengthening; the jackass, the settlers' clock, was tuning for his evening laugh; the parrots had already flown homewards. I was beginning to feel that I had started off foolishly, and feared that I should not reach the river before dark, so increased the speed till I reached an old "stock lane." Beyond, the country changed from bush to prairie, dry, hard, covered with the prints of cattle, and with logs washed down by previous floods lying



AN INTERLUDE.

and then they would either be lost to sight as they fell down a hole, or they would bolt back and get entangled with our legs.

GETTING "BUSHED."

It was on one of these trips over to the river that I first managed to get bushed.

I had had an afternoon's delightful combination of quail-shooting and hay-making. The work lent itself readily to the sport, for the quail lay close beneath the long rows of cut grass. The birds

half in the drought-hardened ground, or hidden in the long swamp and kangaroo grass that grew breast-high. Another two miles to go, and the sun was now down. The rich golden tint along the horizon broadened higher and intermingled with a cold yellow-green, and then again ran into a purple that I could see stretching for miles above the vast expanse of grass. Presently the stars peeped through the grey blue behind me, and the posts of the old fence grew more and more indistinct. There was no track through the long grass. A rushing noise alongside attracted my attention, and

looking round I saw the cattle galloping away with outstretched tails. Stopping at a distance, they eyed me suspiciously, sniffing the air the while. It is not often they see a human being—once now and again the boundary rider will take a look round the fences and count the cattle. I soon caught sight of a gleam of water from beneath a small clump of trees, from whence issued a deafening chorus of frogs and other voices of a lagoon. A wild pig rushed out from the grass, and a great fluttering in the trees startled me—only a few cockatoos disturbed, but they made a great noise. I struck the last post and the riverside just as the intense darkness fell.

The banks were steep, and I could see the broad sheet of water flowing strongly thirty feet beneath. No sign of Bill or Peter. I coo-ee'd, but no response. They were either up or down the river; but that was the detail which was omitted. I could see no gleam of the camp fire in the darkness. It was too dark to go back over the trackless plain and bush. I could not find even the first post that must have been close at hand, so I had no alternative but to camp. Selecting a pine five yards or so from the edge of the bank, in the bend where the trees of the lagoon to a certain extent sheltered me from the cold wind then rising, I groped around for a few sticks and dead leaves, and did my best to make a fire between the tree and the river. I lighted the leaves and grass several times, but my efforts were futile. At last a home letter from a chum was sacrificed to the flame—it was inevitable, but the gods were satisfied. The sticks crackled, the logs caught, and they blazed away cheerily for the rest of the night, aided by pine-bark that I stripped in my waking intervals. My waistband transferred to my throat, I seated myself twixt the breakwind and fire, lighted my pipe, and thought of the old folks at home till the pipe fell from my mouth, and I dozed off with my head against the trunk of the tree. I woke to find that the wind had risen to a gale; and glancing at the box-tree behind me to satisfy myself that no boughs were hanging over my way, enjoyed another smoke. The side that had been presented to the fire was beautifully warm; but on the other side, which the wind caught, I might have imagined myself in England that December night. However, I soon dozed once more, and awoke just before dawn, as the first bird, a native lark, began to twitter.

Now was the hour for fishing, so, wandering to the edge of the lagoon, I groped about in the slime for a frog; but though from the noise during the night one would judge the place to be full of batrachians, it took me at least a quarter of an hour before I could find one.

This accomplished, I started fishing. Most of the fish preferred the frog without the hook, but at last one did not object to swallow both. He was a six-pounder, and I welcomed him as a break to the long run of mutton-chops and mutton-chips to which I had been subjected for some time past.

The strangely formed musk duck was fishing in the same locality, and large black-and-white herons were perched on the trees around; spoonbills and the black swans flew over my head. The riverside echoed with the pleasing voices of bird life.

I considered I was well repaid for the inconveniences of the night in the freshness of that early morn.

On reaching home I found my mates had arrived with a ten-pound fish, and that I was supposed to have been lost. I'm afraid my fish was more welcome, or, at any rate, more appreciated, than I was.

INSECT LIFE.

Insect life is a terrible pest in the colonies—flies, hornets, scorpions, poisonous spiders, centipedes by the yard, and ants by the inch. The flies, like the wren who claimed to be the king of the birds, are lords of creation here; they probably claim a first tenure and levy a tax upon nearly all that the newcomer possesses. They are here and there and everywhere, not in cohorts, but in legions, and often have I laid in my tent and in my half wakefulness endeavoured to work out unworkable problems. For example:

"Proposition I.—If I strung all the flies in this paddock together on one string, how many times would the string circle the globe?"

"Proposition II.—How many fly-papers would it take to absorb them all?"

They have been too abstruse for me, and I have dozed off into an easy slumber. One's attention is called to the flies from the first thing in the morning till sundown.

The meat is brought to the table in a cloth bag; the milk is covered as well as the butter.

With ants it is easier to get on, unless you happen to squat on a bulldog's nest, when probably you will find it both easier and more convenient to get off again. The species called bulldogs—by the bye, the name needs no explanation after you have once been in contact with them—are the most formidable of the ants, exceeding sometimes three-quarters of an inch in length. Their visibly toothed mandibles, projecting from the black, shell-like head, are not, in reality, the worst part to be feared, for the unpleasant part lies in the sting. There is one atoning quality in their characters—they are to a certain extent indolent, and are troublesome only when interfered with. The usual way of keeping them quiet is to light a fire on the top of their mound, and to prevent their egress. It is the smaller species that interfere with household arrangements. I do not profess to know the number of varieties; there must be many, judging from the ways and means for bringing themselves under notice. Take, for instance, that little pot of strawberry jam, and remember that jam is a necessity when the weather is too hot for butter-making. It was in a glass bottle with a metal screw top. Placing it on a shelf, I thought the impenetrability of the glass would secure it. When supper-time arrived, when the toil and heat of the late November day was over, the sun casting its fiery light through the bush and gilding and silvering the foliage of the great eucalypti, I thought of the strawberry jam. Alas! for the impenetrability. I found the ants on both sides of the glass, outside and inside, wading ankle-deep in the sweet, juicy quagmire, like so many babies playing in the mud. What a calamity! No butter, no jam, only dry damper! A pair of

jackasses commence their guttural laugh from a low bough near by, and away goes jam, jam-pot, ants and all, at their heads.

One ant goes locally by the name of the sugar ant. It is of a fair size, of a light reddish brown. Like the flies, it soon learns who takes sugar with tea, and who does not. Ants, ants, everywhere: lines along the shelves, tracks up and down the walls, the paths are covered, and battalions move to and fro in even lines, crossing and recrossing by different recognised routes. They nest in my tent,

climb over the bed and into the boots, and even into my clasped hand-bag; but there is one thing they cannot do—they cannot swim. Herein lies a protection for my edibles, and now everything I want is placed in water.

There are white ants in the garden, and they have killed half-a-dozen orange-trees and a row of vines which I had been carefully tending. In North Queensland I have seen the strange nests of the white ants six feet high or more.

F. H. G.

NOTES ON CURRENT SCIENCE, INVENTION, AND DISCOVERY.

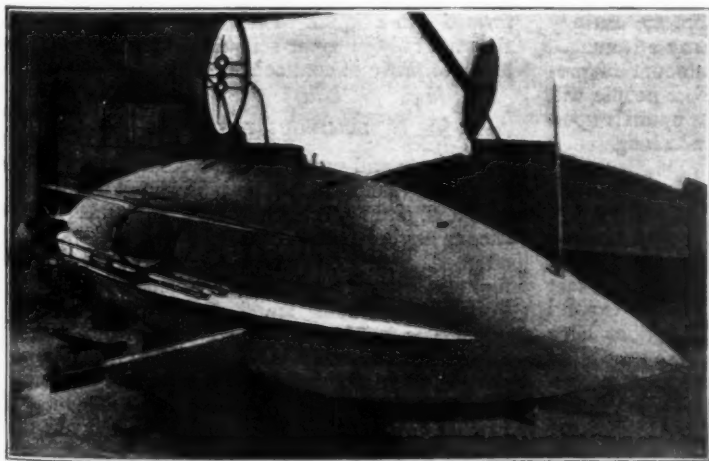
A SUBMARINE BOAT.

ONE of the most successful submarine boats yet produced has recently been constructed by M. Goubet, and is described in French scientific papers. The shape of the boat is that of a spindle, having an oval opening on its upper face to give access to the interior, and a kind of false keel at the bottom. The keel not only gives stability to the boat, but it is capable of being instantly detached, the advantage of this being that, in case of any accident, it may be released, and the boat will then rise to the surface of the water like a cork. Two wings run along the sides to prevent rolling, and they also serve as supports to the self-propelled torpedoes which the boat carries when required. Motion is obtained by means of a screw driven by electricity, or by two oars, one of which is shown in the illustration. In the normal condition the little vessel floats on the surface of the water, only the dome appearing above. The

submergence being four or five yards, which may, however, be increased to eleven or twelve yards. When thus submerged, objects above water are seen by means of a tube which passes through the bronze shell upwards to the surface, and contains a system of mirrors. The water-ballast compartments, ingeniously arranged along the bottom of the boat, can be emptied or filled independently of one another, so that the vessel can be kept at the desired depth of submergence. The boat carries three men, and habitability is assured by means of compressed air, the supply of which is under perfect control. There is little doubt that "La Goubet," as the boat is named, will play a formidable part in naval warfare of the future.

HORSELESS CARRIAGES.

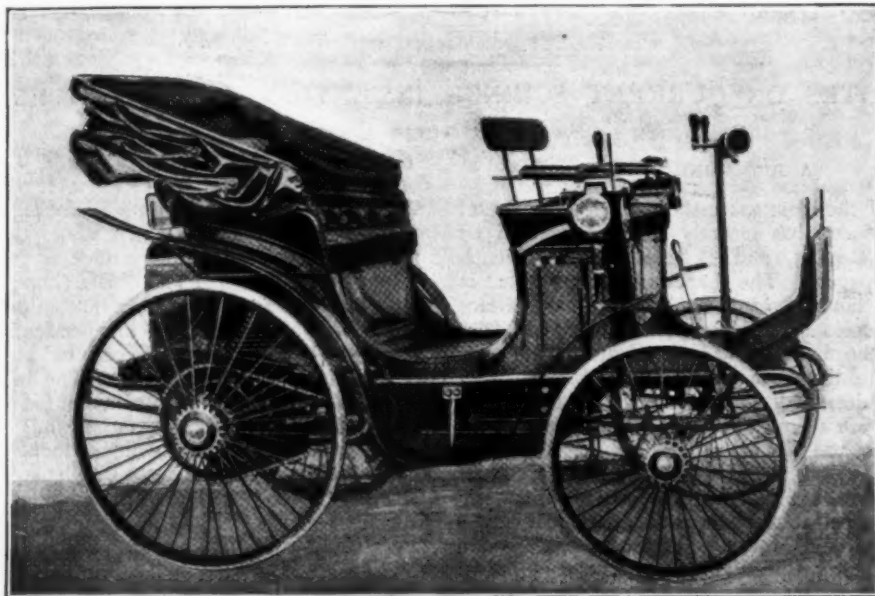
The exhibition of mechanically driven carriages, now being held at the Crystal Palace, will direct attention to an important development of the means of locomotion, and should promote legislative reforms which will enable such carriages to be used on common roads in this country. French makers of motor carriages have the priority in the *renaissance* of this mode of locomotion, inaugurated a century or more ago by their famous countryman, Cugnot. A descriptive series of articles on well-established motor carriage systems in France has appeared in "Engineering," and from it the accompanying illustration of one of the carriages, made by MM. Peugeot & Co., has been derived. MM. Peugeot entered five vehicles in the first, and now historic, competition of mechanically propelled carriages, organised in France in July 1894, and all of them were successful. A rate of fifteen miles an hour was obtained over easy sections of the road, and the carriages were able to run



captain, by looking through the port-holes, can then survey the whole horizon, and steer as he desires. By admitting a little water the boat can be made to sink below the surface, the usual depth of

continuously for periods of two hours without stopping. In the competition of 1895, from Paris to Bordeaux and back, a distance of about 750 miles, the first carriage—one with two seats, built by MM. Panhard & Levassor—returned to Paris in 48 hours 48 minutes; then came a Peugeot carriage with two seats, this having taken 54 hours 36 minutes; it was followed by two others by the same makers, but carrying four passengers, the times taken being 59 hours 48 minutes, and 59 hours 50 minutes respectively. The carriages were driven by Daimler oil motors, and it appears that the cost of petroleum per kilometre (1,080

coil under great pressure, and, after travelling through the whole length of tubing, escapes through a fine orifice at the end of the central coil, cooled by the sudden release. After its escape the whole of the gas cooled by expansion is made to pass around the outside of the copper coils, and so reduces the temperature of the gas inside them. The compressed gas consequently becomes at the point of expansion cooler than that which preceded it, and this intensification of cooling is carried on until liquefied gas escapes from the orifice. The great advantage of the process is that no artificial freezing agents are required: merely by letting



FRENCH HORSELESS CARRIAGE.

yards) for a vehicle of average weight and capacity, is less than a halfpenny. The motors are entirely under control, and they possess many advantages over horses; nevertheless, a large amount of prejudice will have to be overcome before people will be content to substitute them for the animals upon which they have been dependent for so long.

NEW METHOD OF LIQUEFYING GASES.

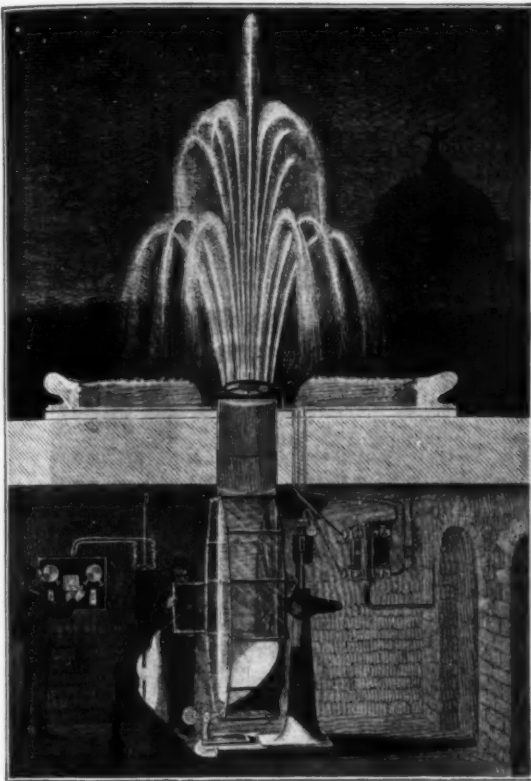
A new process for the liquefaction of air and other gases has lately been invented by Dr. W. Hampson. The process depends upon the fact that when compressed gas is allowed to expand suddenly it is thereby cooled. Suggestions have been made from time to time as to the possibility of applying the reduction of temperature consequent upon the expansion of a gas when released from a high pressure, to the further cooling of the compressed gas, and they have now taken a practical shape in Dr. Hampson's apparatus. In its present form the apparatus consists of three coils of copper tubing, comparable to the worm of a still, arranged one inside the other in a metal case. The gas to be liquefied enters the outer

compressed gas run through the coils it is transformed into a liquid. Dr. Hampson's apparatus is thus not only of great scientific interest, but it is likely to prove of commercial value.

LUMINOUS FOUNTAINS.

A simple and very effective system for producing luminous fountains has been invented by M. A. Adamoff, and is described in "La Nature." The accompanying illustration shows the method adopted. At the centre of the basin of the fountain, surrounded by an ornamental ridge to keep back the water, and just below the jets, is a glass plate forming a small window in the roof of a vault beneath. Directly under the window is an upright wheel, the rim of which consists of twelve flat pieces of glass variously coloured. This wheel is made to revolve by means of a small hydraulic motor, and the glasses around its circumference can be taken out and changed whenever desired. The figure shows an assistant changing one of the coloured glasses. An electric arc-lamp, shown to the left of the wheel, throws a beam of light upon an inclined mirror, by which it is reflected vertically

upwards, and through the window in the roof. In its passage, however, the light has to traverse one of the coloured glasses in the wheel, and is thus given a colour which it imparts to the escaping



METHOD OF ILLUMINATING.

jets of water. It is easy to understand that a great variety of striking effects can be obtained by diversifying the coloured glasses and causing the wheel to turn with different rapidities.

A NATURAL CALENDAR.

How very closely observations of the sun and stars are bound up with early civilisation is shown by Mr. Norman Lockyer in "The Dawn of Astronomy," and ethnologists are continually finding cases in which such observations are used by savage races to determine the times at which prescribed annual observances should be kept. It appears from a paper by Dr. Walter Fewkes that the Tusayan Indians fix the dates of their various festivals and ceremonies by noticing when the sun rises or sets behind recognised definite points on the horizon. In the same way, they determine the times of the summer and winter solstices by observing the extreme points of northerly and southerly risings and settings of the sun; certain hillocks, notches, or trees on the horizon being used as reference marks. It is quite refreshing to read of this direct use of Nature's timepiece in these days, when so few look to the sky "for signs, and for seasons, and for days and years."

RECORDS MADE BY ARCTIC EXPLORERS.

The great interest taken in all that pertains to Arctic exploration was shown a short time ago by the eagerness with which the public looked for confirmation of the report that Nansen had reached the North Pole. It therefore seems worth while to present in a concise form the highest northern points reached by various expeditions. General A. W. Greeley gives, in the "National Geographic Magazine," the latitudes and longitudes of Arctic records made, since 1587, in the Eastern and Western Hemispheres by land and by sea; and from his figures the following distances from the North Pole of all the records have been calculated:

HIGHEST NORTHERN POINTS ATTAINED IN EASTERN HEMISPHERE.

Commander	Year	Number of miles from Pole	Locality
William Barents . . .	1594	879	Near Cape Nassau
Ryp and Heemskerck .	1596	694	North Spitzbergen
(Barents' third voyage)			
Henry Hudson . . .	1607	670	Spitzbergen Sea
J. C. Phipps . . .	1773	639	" "
William Scoresby . . .	1806	590	" "
W. E. Parry . . .	1807	503	" "
Nordenskiöld and Otter	1868	577	(highest by ship)
Weyprecht and Payer .	1874	550	Franz Josef Land, by Payer (highest land)

HIGHEST NORTHERN POINTS ATTAINED IN WESTERN HEMISPHERE.

Commander	Year	Number of miles from Pole	Locality
John Davis . . .	1587	1234	West Greenland
Henry Hudson . . .	1607	1180	Off East Greenland
William Baffin . . .	1616	850	Smith Sound
E. A. Inglefield . . .	1852	810	" "
E. K. Kane . . .	1854	680	Cape Constitution, Greenland, by Morton
C. F. Hall . . .	1870	543	Frozen Sea
C. F. Hall . . .	1871	546	Greenland, by Meyer
G. S. Nares . . .	1875	500	Grinnell Land, by Aldrich
G. S. Nares . . .	1876	460	Frozen Sea, by A. H. Markham
A. W. Greeley . . .	1882	455	New Land, North of Greenland, by Lockwood and Brainard

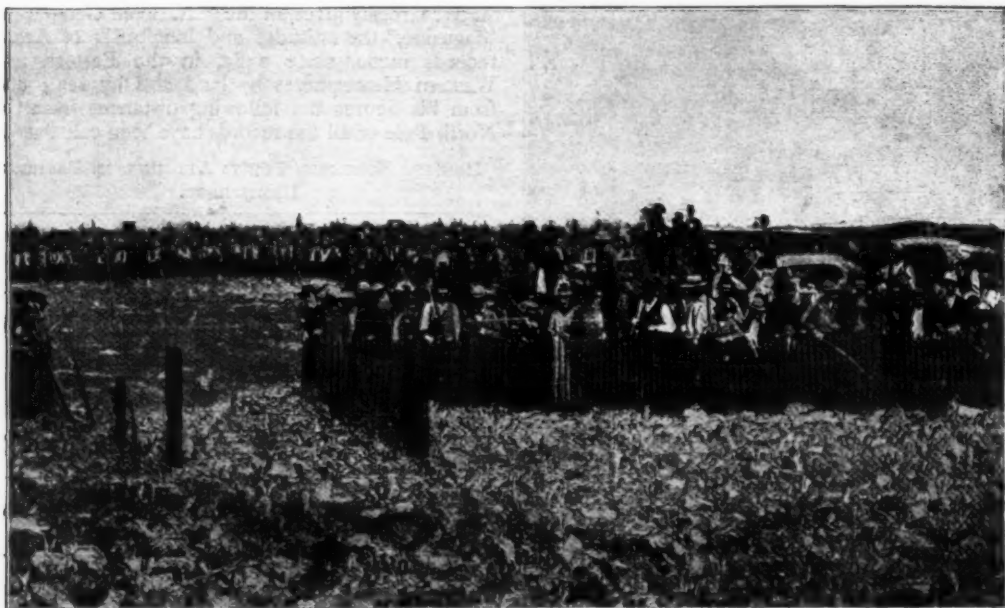
With reference to the facts tabulated, General Greeley points out that Sweden holds the ships' record in the old world, but Parry beat it by boats. England has held the honours of the farthest north through Hudson, Phipps, Parry, Nares, Aldrich, and Markham. This record, unbroken for 275 years, passed to the United States through the efforts of the International Polar Expedition under General, then Lieutenant, Greeley, in 1882, when Lockwood and Brainard reached latitude $83^{\circ} 24'$, the most northerly point, whether on sea or land, ever attained by man, but which may possibly be excelled by Nansen or Jackson.

THE EXTERMINATION OF RABBITS IN CALIFORNIA.

The disastrous results of the introduction of the common European rabbit into Australia some thirty years ago are known the world over. The

large native hares, or "jack-rabbits," of Southern California and the adjoining States, are nearly as great a nuisance in America as the ordinary rabbit in Australia and New Zealand—in fact, the annual loss in Tulare County has been estimated at 120,000/. A report, by Dr. T. S. Palmer, on the jack-rabbits and their ravages, has lately been published by the U.S. Department of Agriculture.

On the day when a rabbit drive has been arranged, the population of the neighbouring country, numbering sometimes as many as six thousand persons, collect and are formed into lines, in order to drive the rabbits between two wings of fencing each six or seven miles long, converging to the corral. The lines gradually close in, and the frightened rabbits, urged on by blows and shouts,



RABBIT DRIVE IN CALIFORNIA.

Hundreds of schemes have been suggested for the destruction of rabbits when they are too numerous, but the most effective means of getting rid of the jack-rabbits in the United States appears to be by driving them over a large track of country into a corral. This is possible on account of the fact that jack-rabbits live on the open prairie, and, as they do not burrow, are compelled to trust for safety on their quickness of hearing and speed.

rush blindly into the opening between the wings and are gradually crowded towards the narrow end of the pen, where they are soon dispatched with clubs. The drives take place in winter and spring, and the number of rabbits killed varies from a few hundred up to ten or even twenty thousand in a single day. The rabbit drive, of which the end is shown in the illustration, took place in the San Joaquin Valley, California.

Varieties.

The Queen as a Model.—In the closing days of 1894, Sir John Thompson, the Canadian Premier, died suddenly at Windsor Castle, where he had been the guest of the Queen. The body was conveyed from Portsmouth to Halifax, Nova Scotia, on board of the warship *Blenheim*. Before the coffin was removed from Windsor a wreath was laid upon it by the Queen. The scene at Windsor and the disembarkation of the body at Nova Scotia have been made the subjects of two fine historical paintings by Mr. F. M. Bell-Smith, one of the foremost of Canadian painters. The paintings have elicited great admiration in Canada, and the interest in them has been heightened by a statement published by Mr. Bell-Smith regarding the circumstances under which the scene at Windsor was painted. It was comparatively easy to get a sketch of the *Blenheim*, and of the scene at Nova

Scotia; but not easy to get a sketch of the ceremonies at Windsor. There were many difficulties in the way, not the least of which was the securing of a sitting from the Queen, who is the central figure in the Windsor picture. Mr. Bell-Smith surmounted them all, and has published an interesting story of his experiences at Windsor. The Queen fixed July 6, 1895, as the day on which she would sit for the painter; but he was told beforehand that the sitting would be very short, "probably not more than five minutes." "I began to fear," continues Mr. Bell-Smith, "that the sitting would be too brief to be of much value; however, I prepared a rough outline of the view of the face I desired, and determined to do the best I could. At the appointed time I was on hand; but at three o'clock the aged attendant announced that H.R.H. the Duchess of Coburg had just arrived, and

that Her Majesty would therefore be detained. We had not very long to wait, however, and on entering the room the Queen with a slight inclination of the head said, 'I am sorry to have kept you waiting.' I had expected that Her Majesty would just sit down, and let me catch what I could, hardly daring to hope that she would pose. But to my delight and astonishment she asked me to place her in the exact position required, and then sat like a Parisian model, keeping her eyes directed to the spot indicated, and scarcely changing the position of the head in the slightest. She could not have done better if she had been paid for it. During the sitting, which lasted for nearly an hour, the Princess Louise stood at my shoulder, and made suggestions and comments on my work as it progressed. These I need scarcely say were much appreciated; but did not tend to lessen the difficulty of the work, or make me any less nervous under the trying ordeal. However, Her Royal Highness was pleased to compliment me at the close, and to say that 'It is a very clever sketch.' The Queen also smiled when it was shown to her." Canada has already the nucleus of a Dominion Gallery of Paintings, to which it is expected that Mr. Bell-Smith's historical pictures will be added.

Starting in Life.—Some valuable information respecting the after-careers of children passing through the elementary day-schools has been collected by the Manchester School Board. A register was kept of the children who finished their school courses during a period of twelve months, and each boy and girl was afterwards traced from school to work. In all, 4,389 children were thus traced, and the statistical table in which the results of the inquiries were made public shows some interesting facts. Concerning the girls the most remarkable fact is that 786, more than half the total number, were at home when the inquiry was made. Only 152 girls were in domestic service; 149 were in the cotton mills; and exactly the same number were at work as milliners and dress-makers. No fewer than 71 were engaged as pupil-teachers in the elementary schools. The most significant fact concerning the boys is the large number who apparently turned to the first work which came to hand without much thought as to the future. Nearly one-fourth of the total number, or, to quote the figures, 664, went from school to work as office boys; 487 as errand boys; and 127 as carters' boys. The number who went from school to learn trades was comparatively small. Thirty-three went to be butchers; 29 to be plumbers; 29 to be printers; 28 to be tailors; 26 to be joiners; 24 to be engineers; 22 to be school teachers; and 20 to be barbers. Only a few more than 200 thus settled at once on the career which was to be their life work. Many of the office boys and errand boys would no doubt after a time change their occupation, and perhaps settle down to learn trades; but it is to be feared that a much larger number would simply drift, and become clerks with little prospect of advancement, or day labourers not qualified for any work which would bring more than a day labourer's pay. These Manchester figures seem to show that a large number of boys enter on a career like that of Micawber as soon as they leave school. They go to work as office boys, or as errand boys, because work of this kind is found with least trouble to themselves or their parents. They take these places hoping that other opportunities will open to them; that something promising a better future will turn up. The boys who are thus early allowed to drift, discover when they are nearing manhood that it is too late for them to learn a trade, and in seven cases out of ten find themselves embarked in work that they have outgrown; but at which they must remain with an indifferent outlook as regards pay and advancement.

Working Man's Model Home.—At the World's Fair in Chicago in 1893 numerous experiments were tried, the reports of which were not made public until months after the great exhibition was at an end. One of these belated reports has recently been published in the official papers of New York State. It concerns a working man's model home. The idea was to show that, except in the large cities in America, it is possible to erect desirable houses for working people which can be rented at £24 a year net; that such a house can be furnished for £60; and that it is possible for a man and his wife and three children to be well fed for £40 a year. The house erected at the Fair had a frontage of twenty

feet and a depth of twenty-eight feet. It was built of wood, at a cost of £200, and was furnished for occupation for £60. For a month during the Fair a family was housed in the model dwelling, and lived during the whole of July on food which cost in English money £3 6s. 8d. The experiment was carried out at the expense of the State of New York, under the superintendence of Miss K. B. Davies, who is now in charge of a College Settlement on the Toyne Hall plan in Philadelphia. The object of the experiment was explained to the man and woman, and they readily assented to the proposed conditions. They promised to eat only what was furnished them in the home. They also agreed that if they found the food insufficient they would frankly say so. The children were constantly under the eye of the mother and of Miss Davies, and could be trusted to say so if they were hungry. Dr. J. S. Mitchell, of Chicago, made a physical examination of the family on the first day of the experiment, and at the end of the month; and in the official report he states that the health of the family throughout the month was good. All were contented. The man, who was one of the Fair policemen, had gained in weight. The woman lost three-quarters of a pound, which, it is explained, was not remarkable considering that the housework for a family of five persons, cooking, washing, and ironing, was carried on in the presence of from five hundred to two thousand daily visitors to the model home. The children held their own. The minutest details of the experiment are contained in the report published at the State Capitol at Albany. It is not possible to go into them here; but it may be stated that complete success was claimed for the novel experiment. It ought to be added that rents are much higher in America than in England. Few working people in provincial England pay £24 a year for their homes. Rents equal to this are very common for working-class tenements in the smaller cities in the United States.

Horseless Road Carriages.—It is to be remembered that the first successful road locomotives were introduced more than sixty years ago by the late Mr. Scott Russell, the Secretary of the Society of Arts, the builder, along with Brunel, of the *Great Eastern* steamship, and the joint-secretary, along with Mr. Stafford Northcote, afterwards Lord Iddesleigh, of the Great Exhibition of 1851. Mr. Scott Russell is almost forgotten by the present generation, but Prince Albert, in one of his published letters, bore emphatic testimony to the value of his services. After describing the difficulties that had been encountered, the Prince Consort said that "by dint of Mr. Scott Russell's tact, judgment, penetration, resource, and courage, all obstacles vanished." Sir Joseph Paxton's palace of glass and iron was a happy thought, but in the organisation and management of the whole exhibition Mr. Scott Russell was the leader and prime mover. It was he, along with Mr. Cole, who by personal application to manufacturers and traders induced many to give sufficient money and goods to fill the exhibition galleries in Hyde Park.

But before he came to London and became Secretary of the Society of Arts, Mr. Scott Russell had built steam carriages for common roads. In the year 1834 there were six of them running regularly between Greenock and Paisley. Railroads were then unknown in Scotland. The steam road cars, with their ingeniously constructed boilers, were opposed by the Road Trustees of that time, and finally abandoned in consequence of their opposition. They first tried to levy excessive tolls, and when they could not put down the traffic in that way, they placed rough blocks of stone and every conceivable obstruction, which caused a fatal accident. In the Minutes of Proceedings of the Institute of Civil Engineers, vol. xxxvi. p. 36, will be seen an account of Mr. Scott Russell's boilers and carriages, the earliest and among the most successful locomotives ever constructed for use on roads.

Tinfoil-lined Envelopes.—It is stated that tinfoil is impenetrable to the X rays. The contents of a sealed letter have been photographed in fifteen seconds by the Röntgen rays. Few substances now afford protection from being visible, whether for good or evil purposes. If tinfoil is one of the few, the "Stationery Trade Journal" suggests that envelopes lined with tinfoil may become a profitable branch of business for stationers.

Doré's Pictures at Chicago.—There are many who regret the closing of the Doré Gallery in London. Artists might be critical, but while the pictures were occasionally faulty in drawing and in technical details, Doré was in genius and invention immeasurably superior to the average artists, and even to most of our Royal Academicians. Then the sacred subjects of his great pictures were of such interest that it was as good as a sermon to sit and view them. Since they were purchased for exhibition in the United States they have attracted the unbounded admiration of the people, and the orders for sale of the engravings have been enormous in number. At Chicago, we have been told that crowds filled the places where the pictures were exhibited, and the impression made by the scenes from the New Testament was similar to that which English visitors to the Gallery in Bond Street felt. In America there were also many critics and depreciators, but less on artistic grounds than from antipathy to the grand subjects of the masterpieces of the painter. It was not likely that the scenes of "Christ Led to His Crucifixion," or the "Dream of Pilate's Wife," and other sacred subjects, would be appreciated or approved by men who had joined in the Parliament of Religion, or Congress of the Professors of all Creeds—Christian, non-Christian, and anti-Christian—about which we heard so much two years ago at Chicago.

The Nicaraguan Canal.—The project for a ship canal across Nicaragua, connecting the Caribbean Sea and the Pacific Ocean, much discussed of late at Washington, has met with an unexpected check. In the United States there is a strong feeling in favour of the canal being made largely at the expense of the Federal Government. A bill to this end was recently before Congress, and, as one result of the agitation, a Commission was sent to make a preliminary independent survey. It was equipped at the expense of the Government, and consisted of Lieut.-Colonel Ludlow, of the Engineer Corps of the United States Army; Captain M. Endicott, of the United States Navy; and Mr. Alfred Noble, an eminent civil engineer. This Commission reported in February. Its report was not full and detailed; but it shows that the canal cannot be made for the sum originally estimated when help from Congress was first sought. It had been urged in Congress that the canal could be made for £14,000,000 sterling. The Ludlow Commission have reported that it cannot be made for less than £26,700,000. Even that sum is not put forward as a final estimate, and before anything further is done the Commission advises a most thorough survey and a detailed study of the proposed route. Two dry seasons will be necessary to an exhaustive survey of the kind suggested. This will involve a wait of at least eighteen months, and an expenditure of £70,000. The Ludlow report has caused some disappointment in the United States, where among the more sanguine supporters of the project it had been hoped that work on the canal would be begun in 1896. The most serious difficulties in the way of the undertaking are the extraordinary rainfall in the country traversed by the canal; the construction of what is known as the Ochou Dam across the San Juan River; and the character of the rock through which some parts of the cutting will have to be carried. On the Caribbean Coast the annual rainfall averages more than twenty-two feet, and on the Pacific side about six and a half feet. With the Manchester Ship Canal in mind, the need of a most searching expert inquiry in regard to the construction of the canal will be better understood in this country than in the United States.

Money Saved by Improved Spelling.—An American argument for spelling reform is addressed to newspaper proprietors and authors. The argument is founded on calculations of economy. So many per cent. of the printed letters in the English language, possibly 12 or 13 per cent., are useless as regards pronunciation. A French statistical writer has made a similar calculation as to French newspapers. There are nearly 7,000 journals published in Paris and the departments of France, and as 13 per cent. of letters are useless for pronunciation an enormous sum is wasted in printing. In printers' ink alone it is estimated that two million francs could be saved by the omission of dumb letters. Time would be saved in the author's study and in the printing office. Useless letters, moreover, con-

sume much paper needlessly. This argument takes no account of the origin or the meaning of words, but is solely urged on the ground of economy.

Franking Letters.—Early in the present session of Parliament, a member of the House of Commons unsuccessfully sought to commit the Postmaster-General to a scheme for the revival of the Parliamentary privilege of franking letters. That the Postmaster-General would give no sort of countenance to the suggestion would cause no surprise to anyone who is familiar with the franking system as it was practised until the early years of the Queen's reign. As a Parliamentary privilege it was of nearly two centuries standing, and for three or four generations before it was abolished it had been subject to the greatest abuse. On two or three occasions endeavours were made to stop the abuse and still leave members of Parliament in the enjoyment of the privilege. None of these succeeded, and at last it became obvious that reform could only come by a measure like that passed in 1840, which did away altogether with the privilege. As long as the privilege lasted, members of Parliament were entitled to the enjoyment of it from the very day of their election. Scores of members of the House of Commons used their first frank in writing from the hustings to their mothers or their wives to tell them of their success at the polls. Had members used them only for their domestic letters, and for letters of a public character, the privilege might have been continued. They did not do so. They gave them right and left to their friends, and many members were followed about town by people who wanted franks from them in order to save the cost of postage. These people would walk miles and wait about for hours to obtain a frank. Croker mentions in his Diary that occasionally some one would hire a hackney carriage in order to call on a member of Parliament for a frank. Lords and Commons alike enjoyed the privilege, and anyone who nowadays reads a diary of last century must often wonder who was left to pay postage, and how the postal service was maintained. Waiters at coffee houses and clubs often received franks as tips; and in the early years of this century at least one member of the House of Commons used to go up to the Reporters' Gallery, dispense his largess in the way of franks, and then suggest that a little more care should be bestowed on the reporting of his speeches. All kinds of devices were used to obtain franks. At one time there was a newspaper which was circulated over the country principally by their fraudulent use. A man would subscribe and pay for the paper, but not for the cost of postage. It would then be addressed to some member of Parliament, in the care of the subscriber; but the newspaper, of course, never reached the member to whom it was addressed.

Scholarly Physicians.—Sir Henry Hallford was not only a scholar, but one who loved scholarship. He was the last of the physicians who were publicly known for their literature and scholarship as well as for their medical skill, and whose reputation was founded upon both. He was truly the *Ultimus Romanorum*, an expression first applied by Dr. Johnson to the elder Heberden, afterwards by Sir W. Hamilton to Dr. Gregory, but now most fitly applied to Sir Henry Hallford. He desired to see Medicine stand upon the same level as Divinity and Law, and this position could only be maintained by the physicians keeping up to the same literary standard as the priest and the barrister. This standard has been maintained by a long succession of great names down to his own time, and he had nothing more at heart than to preserve it unbroken. Mead was taught Latin by a former Eton master, and was recognised by Bentley as a sound scholar. Radcliffe, like Arbuthnot, was educated at University College, Oxford. Garth, a poet and scholar, was at Peterhouse. Freind, the brother of the Head Master of Westminster, was at Westminster and Christ Church, and was even requested by Dean Aldrich to edit the "De Corona" of Demosthenes. Heberden was at St. John's, Cambridge, and wrote Latin well. Musgrave, the editor of "Euripides," was a physician at Exeter. Sir George Baker, who died in 1809, was at Eton and King's, where he left behind him a great reputation for Latin prose. Richard Warren was at Westminster and Jesus College, Cambridge, and won one of the classical prizes. Dr. Gregory, who died in 1821, was a good scholar, though not

at an English University. The younger Heberden, who was at Charterhouse and St. John's, Cambridge, was Chancellor Medallist; and the Latin of his Harveian oration is, on the whole, perhaps superior to Sir Henry's, more easy without being less idiomatic. Dr. Chambers was at Westminster and Trinity, Cambridge. Dr. Latham was at Brasenose, and carried off the Latin verse. Dr. Hawkins, who died in 1877, was at Merchant Taylors' and St. John's, and a double second.—*Dr. Munk's "Life of Sir Henry Hallford."*

House of Commons.—Some quaint and interesting bits of information about the House of Commons, which do not find their way into histories, are scattered in the diaries of the statesmen of the last century. In Lord Colchester's diaries there are scores of these nuggets. As Mr. Charles Abbot, Lord Colchester was Speaker of the House from 1802 until 1817, and in his diaries he sets down many little points of interest which came to his notice in his official position. One of these is the fact that until the movement for economy and reform began in 1780, the House of Commons was entirely refurnished every three or four years, and it was then the privilege of the Speaker to carry away his official chair. At the home of the Onslow family in Surrey, in the last century, there was a collection of these chairs from the House of Commons, as one of the members of the Onslow family was Speaker in five of the Parliaments of George II. Windsor uniform, which any member of the House of Commons may now wear when he goes to Court, was, in Speaker Abbot's time, worn only by officers of the King's Household, and such other persons as received the King's permission. Treasury letters, to summon members supporting the Government to divisions, came into regular use about 1796, when they were carried round to the homes and lodgings of the members by messengers from the Stationery Office. Shorthand writers were first officially employed at the House of Commons in 1786, in connection with the Slave Trade Committee. There were four of them from Gurney's establishment for that work. Official shorthand writers took notes at the bar of the House in 1792. Few of the newspaper reporters at that time used shorthand. The name reporter was not then generally applied to the representatives of the newspapers. They were mostly spoken of as news-writers, a term which had come down from the seventeenth century, when it was applied to the persons who sent out London letters in manuscript to subscribers living in the provinces. In the closing years of last century, members were beginning to be anxious as to how their speeches were reported in the newspapers; but as late as 1798 it was still the fashion to speak disparagingly and contemptuously of newspaper writers. Lord Colchester writes in his diary of going to the Cockpit on December 19, 1798, to hear the King's speech read. "Two-thirds of the room," he writes, "were filled with strangers and blackguard news-writers." Lord Colchester was about the last member of the House of Commons against whom the old standing rule confining the wearing of spurs to county members was put in force. He represented Helston, a small pocket borough in Cornwall. On one occasion, when he appeared in the house booted and spurred like a country gentleman, two county members took exception to his appearance, and insisted that as he was only a borough member, he was not entitled to attend the House so attired.

The Records of Lincoln.—Every now and again, seldom more than two or three times a year, there appears a volume of the reports of the Royal Commission for the Publication of Historical Manuscript, which serves to recall the stupendous task on which the Commission has been so long engaged. The last of the volumes would be exceedingly valuable if it contained nothing more than the records of the city of Lincoln. The records are exceptionally complete. They begin in the twelfth century, and come down almost to our own time. They tell the story of the daily life of the old city all through these six centuries with fidelity of detail, and with here and there much picturesqueness and charm. There are few sides of life that are not touched upon, and although most of the entries are brief, the story, as it is transcribed from the musty old municipal records, is full of movement and incident. One fact which must impress itself upon anyone who reads the history of Lincoln as it is thus told, is that there is little new in our present-day

municipal life. Lincoln had in its knitting school of the sixteenth century what corresponds to the technical schools which are now being established in many of the municipalities. Like our present-day municipalities, Lincoln in the sixteenth century gave money grants to help promising boys from among the sons of the less wealthy townsmen through their university courses at Cambridge. It had also a labour exchange; for in 1562 an ordinance was passed by the City Council compelling "workmen and labourers out of work to stand every morning at Stonelov for one hour at least, that those who lacked workmen may find them." Much effort was bestowed on the maintenance of a quiet Sunday. Tanners who had to leave the city to attend distant hide markets were prohibited from travelling on that day, and the journeys of the carrier to London were so arranged by the City Council that he should not find himself on the road on the Sabbath. In the closing years of the sixteenth century, town chaplains were maintained at the expense of the municipality "to teach the inhabitants the Word of God, and to visit and give good counsel as need shall serve." The cathedral clergy were held in high esteem. Townsmen who spoke disrespectfully of them were disfranchised—a punishment which carried a good deal with it at a period when a charge of £10 was made for the freedom of the city. Another interesting feature in this old town life is that a man who had faithfully served the municipality was never allowed to be overborne by poverty. Fortune might use him harshly, but if his career had been an honourable one, a small pension made his old age easy. It was the same with the widows of these citizens. There are several entries in the Lincoln records which serve as precedents for the small pensions which are paid to-day in some of the municipalities to the widows of men who have served as mayors.

Astronomical Notes for June.—The summer solstice takes place on the 20th, the Sun attaining his greatest northern declination, and being vertical over the tropic of Cancer about 10 o'clock on the evening of that day. He will rise at Greenwich on the 1st day of the month at 3h 50m in the morning, and set at 8h 5m in the evening; on the 15th he rises at 3h 44m, and sets at 8h 16m. Daylight is longest in the northern hemisphere on the 20th, when it lasts in London for 16 hours 34 minutes, from sunrise to sunset, and there will be no true night throughout the month. The Moon will enter her Last Quarter at 8h 3m on the morning of the 3rd; become New at 8h 43m on that of the 11th; enter her First Quarter at 11h 41m (19m before noon) on that of the 18th; and become Full at 6h 55m on that of the 25th. She will be in apogee, or farthest from the Earth, about 8 o'clock on the morning of the 5th, and in perigee, or nearest us, about four o'clock on the afternoon of the 20th. No eclipses are due in June, but a very interesting occultation of the planet Jupiter by the Moon will take place on the 14th, of which the largest portion will be visible in this country, the crescent Moon passing over Jupiter at 9h 52m in the evening, but setting at Greenwich a few minutes before the reappearance takes place (10h 43m). The planet Mercury will be in inferior conjunction with the Sun on the 10th, but towards the end of the month may become visible for a brief interval before sunrise. Venus is approaching superior conjunction, and will not be visible in any part of this month. Mars continues to increase in brightness as a morning star, passing during the month from the constellation Pisces into Aries. Jupiter is still a brilliant object in Cancer during the early part of the night, but by the end of the month he will set less than two hours after sunset. Saturn is almost stationary in Libra, about two degrees due north of the star Alpha in that constellation, which is of the third magnitude. The first comet of the present year was discovered by Mr. Perrine at the great Lick Observatory, California, on the morning of February 13, but it never became visible to the naked eye, and has long since ceased to be visible even with powerful telescopes. Calculation showed that it had made its nearest approach to the Sun at the end of January, and that its orbit is not periodic. The second comet of 1896 was discovered by Professor Swift at the Lowe Observatory, South California, on April 13. It was nearest the sun four days afterwards, since which it has gradually become fainter, and was at no time visible to the naked eye. The orbit being ascertained to be parabolic, it will not again return to our neighbourhood.—W. T. LYNN.

Puzzles for Rainy Days.

PRIZE COMPETITIONS.

A. SEARCH PASSAGES.

TREES.

(Find source and author of each passage. Two prizes in books, One Guinea and Half a Guinea in value, given for the largest number correct.)

1. "Under a spreading chestnut-tree
The village smithy stands."
2. "Dear to me
My citron-groves of Fiesolè."
3. "Oh! art thou sighing for Lebanon
In the long breeze that streams to thy delicious
East,
Sighing for Lebanon,
Dark cedar?"
4. "That single elm-tree bright
Against the west."
5. "Where'er the oak's thick branches stretch
A broader, browner shade."
6. "But there's a Tree, of many, one,
A single Field which I have looked upon,
Both of them speak of something that is gone."
7. "Some melodious plot
Of beechen green, and shadows numberless."
8. "Drenched willows flung them headlong in a fit
Of mute despair."
9. "The fragrant pines, and the cedars dusk and dim."
10. "Th' enlightened spirit sees
That shady City of Palme-trees."
11. "Hard by a poplar shook alway,
All silver green with garled bark;
For leagues no other tree did mark
The level west, the rounding gray."
12. "Where vines carve friezes 'neath the eaves,
And in dark firmaments of leaves,
The orange lifts its golden moons."

B. SELECTIONS.

Will our readers select half a dozen short passages, describing the pleasures of reading? Four prizes (in books) of the total value of a Guinea and a Half will be awarded for the best papers. State source and author. The set of selections not to exceed 150 words in all.

C. SHAKESPEARIAN ACROSTIC.

As announced in March, Six Guineas' worth of prizes (in books) will be distributed among successful solvers of this series, which closes this month. Results will be published in August.

FOURTH OF FOUR.

1. Browbeaten in the language of *his* trade, *he*
Could still perceive *his* work had pleased the lady.
2. One wept to name *her*, who ne'er saw *her* face,
What had he done, if in his hearer's case?
3. *This* yet, as once a wit with truth declared,
May war avert 'twixt foes with weapons bared.
4. More than a dozen victories crowned *his* sword;
Slain by a child was *he*, when off *his* guard.

5. By *these* the artful beggar urged his claim,
But failed to move his patron with *their* name.
6. In *this* abode we meat and drink shall find,
First let the city's beauty feast your mind.

Initials of above words spell the following:

Since nothing is like leather, can it be
Music forgetteth leather to learn *thee*?

(Find each of the above words, giving act and scene for each reference.)

RULES.—1. Write in ink clearly, on one side of paper. Begin with name of the competition, end with your address.

2. All answers must be received by the 20th, must be addressed to "*Leisure Hour*" Editor, must contain blue coupon (opposite), and may contain replies to all three competitions.

3. Answers will appear in due course, when winners may choose book prizes to the values named.

ANSWERS FOR APRIL.

A. SEARCH PASSAGES.

1. *Thrush*, "Home Thoughts," Browning. 2. *Raven*, "The Raven," E. A. Poe. 3. *Macbeth*, "Macbeth," I. 6, Shakespeare. 4. *Goldfinches*, "I stood tiptoe," Keats. 5. *Cock*, "L'Allegro," Milton. 6. *Waterfowl*, "To a Waterfowl," Bryant. 7. *Swan*, "Paradise Lost," VII. 498, Milton. 8. *Lark*, "Black-eyed Susan," Gay. 9. *Thrush*, "When Lilacs last," Whitman. 10. *Nightingale*, "Sonnet," Milton. 11. *Lory*, "In a Gondola," Browning. 12. *Cuckoo*, "The Cuckoo," Michael Bruce.

B. SELECTIONS ON HOPE.

First Prize.

1. "Hope is the only tie which keeps the heart from breaking."—*Fuller*.
2. "Early they rise whom Hope awakens, and they travel fast with whom she goes companion of the way."—*Southey*.
3. "Hope is itself a species of happiness, perhaps the chief happiness which this world affords."—*Dr. Johnson*.
4. "The miserable have no other medicine, but only hope."—*Shakespeare*.
5. "Unfading Hope! when life's last embers burn,
When soul to soul, and dust to dust return,
Heaven to thy charge resigns the awful hour!
Oh! then thy kingdom comes, Immortal Power!"—*Campbell*.
6. "Yet Hope had never lost her youth,
She did but look through dimmer eyes."—*Tennyson*.

Second Prize.

1. "Hope is the poor man's bread."—*Herbert*.
2. "Sanguine Hope, through every storm of life,
Shoots her bright beams."—*Kirks White*.
3. "The husbandman
Prepared the soil, and silver-tongued Hope
Promised another harvest."—*Pollak*.
4. "Nor is he far astray who deems
That every hope which rises and grows broad
In the world's heart, by ordered impulse streams
From the great heart of God."—*Lewell*.
5. "Hope, unyielding to despair,
Springs for ever fresh and fair;
Earth's serenest prospects fly,
Hope's enchantments never die."—*Montgomery*.
6. "Hope, as an anchor firm and sure, holds fast
The Christian's vessel, and defies the blast."—*Couper*.

C. SHAKESPEARIAN ACROSTIC.

- R—Richard. "Richard III," i. 1.
O—Oberon. "A Midsummer Night's Dream," ii. 1.
S—Snug. "A Midsummer Night's Dream," i. 2.
A—Antonio. "The Merchant of Venice," i. 3.
L—Lear. "Lear," ii. 4.
I—Iago. "Othello," i. 1.
N—Nym. "Henry V," ii. 1.
D—Davy. "11. Part Henry IV," v. 3.

For prize-winners' names look among advertisements.

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